

ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 159

DATE: Tuesday, June 9, 1992

BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
Tuesday, the 9th day of June,
1992, commencing at 10:00 a.m.


VOLUME 159

B E F O R E :

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MS. G. PATTERSON	Member

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1 ---Upon commencing at 10:00 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is now in session. Be seated, please.

4 THE CHAIRMAN: I wish to put on the
5 record Exhibit No. 709, it actually is an
6 interrogatory filed with the Ontario Energy Board,
7 Hearing 21, it's interrogatory response 6.12.10 at that
8 hearing. It's filed by the Independent Power Producers
9 Society of Ontario.

10 ---EXHIBIT NO. 709: Ontario Energy Board, HR 21,
11 Interrogatory Response 6.12.10,
12 filed by the Independent Power
Producers Society of Ontario.

13 THE CHAIRMAN: Mr. Starkman?

14 MR. STARKMAN: Thank you, Mr. Chairman.

15 AMIR SHALABY,
16 JOHN KENNETH SNELSON,
17 JANE BERNICE TENNYSON,
18 FREDERICK GEORGE LONG,
BRIAN PAUL WILLIAM DALZIEL,
HELEN ANNE HOWES; Resumed.

19 CROSS-EXAMINATION BY MR. STARKMAN (Cont'd):

20 Q. I want to turn to the subject of how
21 the various options were compared by Ontario Hydro in
22 the planning process, and I guess I would just like to
23 look briefly at Exhibit 646, which is the supplementary
24 witness statements. I am looking on page 3, paragraphs
25 10 and 11.

Paragraph 10 says that:

The natural environmental effects of plans are evaluated on the basis of resource use in the production of emissions, effluents and solid wastes. Hydro is committed to integrating environmental considerations into its planning and operating practices.

And paragraph 11 says that:

The social and environmental considerations are used throughout the planning process in the development and analysis of options and plans. Public concerns inform the development of plans and the social environmental criteria and analysis. Input into this process is documented in Exhibit 535, public government review, and input into Ontario Hydro's demand/supply planning process. Social environmental impacts of the Update plans are evaluated using the following criteria: Employment and regional economic development, local community impacts, including special or sensitive groups, and lifestyle impacts,

1 social acceptance and distribution of
2 risks and benefits.

3 I guess first I would like to deal with
4 the social environmental considerations and, Dr.
5 Tennyson, I guess you are going to talk to that matter.

6 I would like to ask you, in terms of the
7 social environmental considerations and the items I
8 enumerated in paragraph 11, can you tell us what is the
9 basis for the comparison between options that Hydro
10 uses in the planning process?

11 DR. TENNYSON: A. Well, as I indicated
12 in my direct evidence, we use those criteria to compare
13 the various options, so, for example, as you saw in the
14 supplementary witness statement when we had the options
15 comparisons, I examined each of the options based on
16 those various criteria.

17 Q. Yes, you considered those criteria,
18 but what did you use as the basis for comparing between
19 the options?

20 A. Well, the essence of the evaluation
21 is comparison, and so when you use words like "greater"
22 or "lesser" or "more" or "less" you are comparing them.
23 And so based on the kinds of information we have, I am
24 able to say where there may be greater effects or
25 lesser effects or more significant ones with the

1 various options.

2 Q. Let's take a look then at how this
3 comparison was done. Can we look at Exhibit 646,
4 supplementary witness statement, page B-1, which is the
5 safety analysis comparison?

6 A. Safety is not one of mine.

7 Q. Would that be Ms. Howes, safety?

8 MS. HOWES: A. No, it's Mr. Dalziel.

9 MR. DALZIEL: A. I spoke to this in
10 mine.

11 Q. We could look at that. Let's look at
12 the safety analysis on page B-1 of Exhibit 646. Have
13 you got that?

14 A. Yes.

15 Q. All right. Now, the question I asked
16 Dr. Tennyson, maybe I could ask you then. What is the
17 basis that you used for comparing between options with
18 respect to the safety analysis?

19 A. I think I said in my direct evidence
20 that Hydro doesn't actually set out to compare options
21 on the basis of safety and rank them in the way that we
22 do with costs for example. The reason for that is
23 Hydro looks at each one of its activities, it doesn't
24 matter which option that activity is associated with,
25 and each activity, a primary objective in that is

1 worker and public health and safety.

2 Q. I appreciate that, Mr. Dalziel, but
3 if you look at the safety comparison, just in terms
4 first of what is written down. You say demand
5 management. You said worker protection measures
6 required in manufacturing and installation of
7 equipment.

8 A. That's right.

9 Q. That's the extent of the analysis
10 with respect to the safety considerations on demand
11 management?

12 A. We have not carried out an evaluation
13 of worker health and safety for demand management or
14 public health and safety. I believe I made reference
15 in my direct evidence that almost all of the demand
16 management options rely on electrical equipment, the
17 fluorescent lights, for example, high-efficiency
18 motors.

19 And all electrical equipment in the
20 province must meet the requirements of the electrical
21 safety code. So, when you are manufacturing a
22 component in Ontario for use in Ontario, or even if you
23 are manufacturing it outside of Ontario for use in
24 Ontario, it must meet the requirements of the
25 electrical safety code.

1 Q. I appreciate that. But with respect
2 to demand management, does Hydro make any comments on
3 the environmental considerations with respect to this
4 option other than worker safety?

5 A. I think in Panel 4, for example, was
6 the evaluation of the earlier all-supply case versus
7 Plan 15, Plan 15 having the demand management program
8 incorporated as part of it. There was an evaluation
9 then of the emissions from the existing system, with
10 and without demand management. That essentially was an
11 environmental comparison.

12 Q. I don't want to revisit what went on
13 in Panel 4. This is the planning question, this is a
14 planning panel. I am trying to ask you in terms of
15 your evaluation of the plans, where is that information
16 provided? How is it integrated into the planning
17 process?

18 A. The environmental considerations?

19 Q. Yes.

20 A. Of demand management?

21 Q. Yes.

22 MS. HOWES: A. I think that's probably
23 something that I should more appropriately address.

24 There is some discussion of the
25 environmental implications of demand management in

1 Exhibit 4, and that's in section 4.0, and there is some
2 review of demand management characteristics there.
3 There were also two exhibits in Panel 4 which describe
4 the environmental effects of some demand management
5 programs.

6 Q. Yes.

7 THE CHAIRMAN: Am I missing something?
8 There is a table in B-2.

9 MS. HOWES: That's right.

10 THE CHAIRMAN: Showing demand management
11 with respect to all the natural characteristics, and
12 there a table in starting in B-9 of the social and
13 employment characteristics of demand management.

14 MS. HOWES: That's true.

15 MR. STARKMAN: Mr. Chairman, I am coming
16 to those.

17 THE CHAIRMAN: I thought that's what your
18 question was, where was it done, and that's where
19 certainly the results are set out.

20 MR. STARKMAN: Well, Mr. Chairman, the
21 question here started off to say they provided a table,
22 it's called Comparison of Options, and it has a title
23 Safety. So the question started off to say, this is
24 where Hydro in the planning process did the comparison
25 of options with respect to safety. And what I am

1 asking is, first of all, under demand management, they
2 say worker protection. If you go down to the bottom of
3 the page you see nuclear. This is on of the safety
4 question. What they say here is:

5 Worker protection measures required in
6 fuel supply, manufacturing, construction
7 and operation, special safety measures in
8 place to meet and better worker and
9 public safety requirements, special
10 measures in place in other development to
11 ensure safe handling and disposal of
12 radioactive materials.

13 My question is, in terms of looking at,
14 say, demand management and nuclear, concentrating on
15 the safety, how is the comparison done between these
16 options?

17 THE CHAIRMAN: Their evidence is they
18 don't make comparisons between options with respect to
19 have safety. That was Mr. Dalziel's evidence correct.

20 MR. STARKMAN: Q. You don't make
21 comparisons of options with respect to safety, is that
22 right, Mr. Dalziel?

23 MR. DALZIEL: A. Essentially that's
24 correct. Ontario Hydro sets out to make sure that all
25 of its activities are safe.

1 Q. Now, with respect to public health
2 this, all right, where is the comparison done with
3 respect to the public health impacts of the various
4 options?

5 A. I think again the similar approach
6 with respect to worker safety is applied to public
7 health, and that is Ontario Hydro aims to minimize as
8 much as possible the impact, the potential impact on
9 public health as a result of all of its activities.

10 [10:13 a.m.]

11 Q. All right. So you don't do any
12 direct comparison between options on the basis of
13 public health impacts.

14 A. Not directly. We have documented
15 some information on potential public health impacts in
16 a series of exhibits that were available for discussion
17 in each of the options panels.

18 Q. Yes. But we are now in the planning
19 process. When you are putting the plans together, do I
20 understand it that you do not compare options one
21 against the other based upon public health
22 considerations?

23 A. That's correct.

24 Q. Now, just with respect to the nuclear
25 public health option, just so I'm very clear, I

1 understand Hydro doesn't feel there is any great risk
2 of a major accident. But there is some risk. And I
3 take it that whatever the risk is, because you don't do
4 this comparison, you don't factor that in at all in
5 terms of the comparison that you are making between
6 options.

7 A. It is factored in in making the
8 judgment as to whether the nuclear option is an
9 appropriate option to consider in planning.

10 Q. So you do you factor in that public
11 health option in terms of making the comparison between
12 options.

13 A. Not the comparison. In making the
14 decision about is an option acceptably safe. You make
15 that judgment option by option as to whether the option
16 is acceptably safe. But having determined that an
17 option is acceptably safe, then it is eligible for
18 consideration in planning from that perspective.

19 Q. Oh, I see. So the planning, I didn't
20 really appreciate that. The way Hydro perceives what
21 the planning then is, they look at a number of options
22 in isolation and they determine whether a particular
23 option is acceptably safe in and of itself. Once that
24 is determined, then it is eligible for inclusion in the
25 option package, is that correct?

1 A. I think that describes it.

2 Q. And once it is in the option package,
3 then there is no further comparison as between options
4 as to whether one is better than the other with respect
5 to the safety issue.

6 A. That's correct.

7 MR. SNELSON: A. I think that is correct
8 with respect to formal analysis. I do believe that in
9 the judgmental process of deciding upon whether a plan
10 is acceptable, then the decision-makers will bring to
11 that their own perceptions and their own -- of residual
12 acceptability of options from a safety point of view.

13 Q. You say they will bring to the
14 question their own perceptions.

15 A. Yes.

16 Q. But where, is there any effort made
17 to identify those perceptions?

18 A. I don't believe that there is any
19 identification of those perceptions.

20 Q. Okay. So this is, if I can
21 understand the process you are now describing, you
22 identify a bunch of options which you feel are
23 acceptable in and of themselves, then when you compare
24 them, or when you are making the plan, there is no
25 direct comparison, for example, in the safety question.

1 But the people involved in making the plan bring their
2 own perceptions, although they may not be able to be
3 identified up front as to whether one option is more or
4 less acceptable than another.

5 A. We very clearly, in Exhibit 3,
6 identified this sort of scale of consideration, and I
7 don't have it right with me unless someone has a copy.

8 It is in chapter 15, I recall that. I
9 think it is figure 15-7, where it discusses and brings
10 to the fore a number of factors that might influence
11 the decision as to the acceptability of Cases 26, 24,
12 15, 22, and 23.

13 And the concerns about radioactivity
14 issues including nuclear safety and other issues
15 associated with nuclear plant are identified as the
16 second line of features in that table, clearly
17 identifying that the plans that have more nuclear plant
18 in them will have higher radioactivity concerns than
19 the ones that have lower amounts. That was brought to
20 the fore for decision-making purposes.

21 Q. I appreciate that, Mr. Snelson. I
22 guess the question started off as what is the basis for
23 comparing as between the options. I know a nuclear
24 plan will have more radioactivity than a non-nuclear
25 plan. I mean, it strikes me as what would follow. But

1 what I'm trying to find out is the basis upon which
2 Ontario Hydro chooses as between options that have more
3 or less radioactivity.

4 A. Well, I think Mr. Dalziel has given
5 you the answer to that question.

6 Q. All right. Let me move on to a few
7 more places where there is some plan comparison. Ms.
8 Howes, can I look at the environmental characteristics
9 which is in Exhibit 646. It seems to start about page
10 B-2, B-3, B-4. Have you got those charts?

11 MS. HOWES: A. Yes, I do.

12 Q. And again, they are similar types of
13 questions and maybe the answer is the same so just let
14 me know. What I am looking at here is, for example,
15 you say demand management.

16 No direct emissions due to energy
17 savings. Emissions depend on type of
18 fuel combustion inefficiency.

19 This is an identification of some of the
20 characteristics of demand management activities.

21 A. Yes. Remember these tables refer to
22 the operation phase of these particular options.

23 Q. Yes, all right. Now, just if we go
24 down to fossil, to take one 4 by 500 megawatt U.S.
25 coal, do you see that one there?

1 A. Yes.

2 Q. And there is a 1.6.

3 A. Right.

4 Q. So that says there is 1.6 gigawatt
5 per terawatthour of SO(2) emissions in that, or
6 gigagrams, sorry, in that category.

7 A. Yes, that's right.

8 Q. Now, with respect to the 1.6, what
9 does that tell us about the environmental impact of
10 that rate of emission?

11 A. It is not intended to tell you what
12 the environmental impact is.

13 Q. All right.

14 A. It is supposed to provide a basis for
15 comparison, across, in this case, fossil options. The
16 emissions per option is provided on the basis of per
17 terawatthour. So with a quick glance one can get a
18 sense of which of these particular options has higher
19 SO(2) emissions than the other, NOx emissions than the
20 others.

21 And our intent here, of course, was to
22 give some sense of the relative emissions of these
23 particular options.

24 Q. And is the sense that the higher the
25 emissions the worse is it, or to put it another way the

1 lower the emissions the better it is? Is that the
2 planning idea?

3 A. You could make a gross statement like
4 that. But I think to look specifically at
5 environmental impact is more appropriately done at a
6 sight specific area when you know the geographic area
7 that you could be affecting.

8 Q. But in terms of comparison between
9 options -- let me back up. Does Hydro tell us anywhere
10 what the impact on the natural environment is of a 1.6
11 or a .25 or a 3.8, whatever number?

12 A. During the options comparison stage
13 of this?

14 Q. Yes.

15 A. Not during the options comparison.
16 Later in my direct evidence there was a discussion of
17 the emissions relative to regulation, if you recall.

18 Q. I understand that. We can come to
19 that later. What I'm asking is does Hydro anywhere in
20 its evidence tell us what the impact on the natural
21 environment is of any particular emission level?

22 A. As I said, that is more appropriately
23 done during a site-specific time when a geographic
24 basis has been identified.

25 Q. So you don't do that in the planning

1 stage.

2 A. Yes, we do for the whole plan. And
3 as you are aware, there have been reports or exhibits
4 filed during each of the Panels 7, 8 and 9, I believe,
5 that have looked at the natural environmental effects
6 of various options.

7 [10:25 a.m.]

8 Q. If you are comparing options based on
9 this, demand management, you say there was no direct
10 emissions?

11 A. Right.

12 Q. Take another one. Fossil, the one we
13 are looking at, 1.6.

14 A. Right.

15 Q. Now, if I am trying to compare
16 options between demand management and fossil, 1.6, how
17 do you do that, or what does this information tell us
18 about undertaking that task?

19 A. It probably tells you that if you
20 were concerned about SO(2) emissions that a coal-fired
21 station would be worse from SO(2) emissions than demand
22 management programs. And the basis is per terawatthour
23 which makes the comparison somewhat easier to do.

24 Q. And is that a type of task that Hydro
25 does in the planning process?

1 A. Identify options, yes, by their
2 environmental characteristics, yes.

3 Q. And they compare them based on these
4 numbers?

5 A. That's right.

6 Q. And they arrive at ones which are
7 preferable based on these numbers?

8 A. Yes.

9 Q. Let me then look at page B-9. Dr.
10 Tennyson, is this your area here? This is the social
11 environment.

12 DR. TENNYSON: A. Yes.

13 Q. So, if I look at the first one,
14 demand management EEI under employment and regional
15 economic development, you tell us that demand
16 management EEI will have significant employment in
17 communities across the province, i.e., in supply,
18 manufacturing, installation, maintenance and
19 programming. So you are talking here about direct and
20 indirect employment?

21 A. Yes.

22 Q. And then there will be limited
23 regional economic development and less manufacturing
24 facility established?

25 A. That's what I said, yes.

1 Q. Now, under local community impacts,
2 say, demand management, EEI, you say:

3 No significant potential local
4 community impacts and less major
5 construction is required to meet targets.

6 A. That's what I said, yes.

7 Q. Government standards and building
8 codes may affect the pace and cost of
9 housing development. Some groups may
10 have less access to programs.

11 A. Yes.

12 Q. Now, what I am trying to understand
13 is, how is this information used in terms of comparing
14 options?

15 A. I can appreciate your point. I think
16 if you look through the table you will get a sense that
17 some we have suggested, for example, have significant
18 employment, others do not. Let's say tried to speak to
19 where there would be significant impacts unless impact
20 management measures were induced. Others are saying we
21 do not anticipate those kind of impacts, and et cetera,
22 went through the other criteria.

23 So we are really laying out the sort of
24 basis of the information of what we would say about
25 these various options based on -- when you asked what

1 is the basis for these. These are evaluation criteria,
2 so therefore you set up your criteria to be able to
3 look at the various options, right, then you get your
4 data and you try to do your analysis in terms of them.
5 Then when I was speaking in my direct evidence, I
6 tended to try to provide the kinds of comparisons you
7 are talking about, generally one has more, there would
8 be greater impacts with certain things than others,
9 where public support was greater for certain programs,
10 or whatever. And that's the essence of what I did.

11 Q. Okay. I understand you are saying
12 that these are the criteria. But what I am asking
13 again is, what is the basis for the comparison? I
14 mean, you say some options have greater employment
15 impact or lesser or greater opportunities or lesser --
16 the type of information that's here, but when you sit
17 down to compare them what is the basis that you use for
18 making the comparison?

19 A. I am really struggling with what you
20 mean by what is the basis.

21 The basis to me, I mean, I am trying to
22 answer this, okay? The basis can be hard data like
23 numbers. So if I know that there are potentially more
24 jobs with one kind of option than another, then I am
25 basing it when I make a statement like "significant",

1 that I know what it's based on. It's based on a
2 certain number. It's based on the fact that there is a
3 lot of public input that has told me that that is
4 significant. So that is my basis.

5 In other instances it's the public
6 involvement program that has told me what I would say
7 on this. So the basis is information, the judgment is
8 partly mine and partly in terms of what the public has
9 told me.

10 I am not sure this is helpful, but that's
11 once again what I do.

12 Q. I understand what you are trying to
13 say. But what I am asking is, you gather all that
14 information and then you form an opinion.

15 A. Judgment. Professional judgment I
16 would call it.

17 Q. You perform a professional judgment
18 as to which options are preferable as between the ones
19 that are available?

20 A. Basically what happens is I could do
21 it by the individual criteria in terms -- of based on,
22 say, for example, if once again, as Ms. Howes said, if
23 concern is about employment, I can form a judgment by
24 which would be preferable in terms of what provides
25 most employment. But by the same token, there are

1 other criteria that come in so you have to do an
2 analysis in terms of saying, okay, let's lay out for
3 decision-makers on the basis of these criteria what are
4 the differences.

5 Q. Dr. Tennyson, based on just the
6 social environmental analysis, just to give me an
7 example, a real example of how you do this. Leaving
8 aside all the other criteria which go into the planning
9 process, which is preferable? Which of the options are
10 preferable?

11 A. That is now how we do our
12 decision-making.

13 Q. You just told me, you get the
14 information, you go through it and you form an opinion.
15 I understand that is input in with a whole lot of other
16 factors. Leaving those factors aside, just holding all
17 those as not being relevant, based on your analysis and
18 your professional opinion, what does your analysis tell
19 you about preferable options from the social
20 environmental perspective?

21 A. What it tells me is what I have laid
22 out here and in my direct evidence.

23 What I am trying to testimony you is that
24 decision-making is not done, we don't come to a table
25 and they say, "Okay, Dr. Tennyson, you pick one from a

1 social environment. Ms. Howes, you pick one from the
2 natural, and somebody else from technical."

3 We bring and we break it down in much
4 more finer things. So that when everyone at table is
5 evaluating from a planning perspective, they can say,
6 okay, it may have more employment but it's got higher
7 cost, it's got greater impacts, it's got these on the
8 natural environment. That's how decision-making
9 occurs.

10 Q. I completely understand that, and I
11 am not asking you -- I realize there are all types of
12 other factors, costs, supply concerns, whatever. But
13 just on the basis of your analysis, if that was the
14 only criteria, hypothetically if that was the only
15 criteria, what does your analysis tell you as to which
16 is the preferred option from the social environmental
17 point of view?

18 I know it's not the final say; it's only
19 one part of the big puzzle.

20 A. But I don't even do that. I don't
21 come to the table and say, "Okay, here I am from the
22 social environment, pick this one."

23 If you are asking me hypothetically then
24 I would have to sit down and say, okay, what do I think
25 of the various options from a particular point of view.

1 And clearly you can look at something like demand
2 management which is preferred by the public, which has
3 benefits associated with it, which we arguably have low
4 community impacts, and therefore, it would be a
5 preferred option as we have done it in our plans.

6 Q. All I am trying to find out is Hydro
7 says over and over again, that in terms of the planning
8 process they exercise judgment at various points in the
9 process. You have the expertise and are on this panel
10 as an expert with respect to social environmental
11 impacts. All I am asking you is, after your work and
12 study of this matter, what is your professional
13 judgment as to the preferred option from a social
14 environmental point of view?

15 A. I am saying we don't do that. I
16 don't rank them from that point of view. That's not
17 the way I do my work. But you just asked me what I
18 think and I would suggest that demand management would
19 be a preferred option.

20 Q. So in the planning process you don't
21 do that. You come to the table, provide input on the
22 social environmental impacts of various options but you
23 do not express a view based on your analysis as to what
24 the preferred option is?

25 A. Not from a sole isolated point of

1 view as if you can take the social environment and
2 collapse it into something so that I would come and say
3 that, no.

4 Q. Now, if I am reviewing this
5 information, on what basis can I arrive at a
6 determination as to the social? Is there any basis,
7 put it that way, that I can arrive at, a preference?

8 A. Okay, you are the decision-maker,
9 right, you want to make your preference, therefore I
10 have laid out for you the information and the best
11 judgment I have in terms of my expertise on the various
12 implications from a socio-economic point of view, and
13 based on that, you would consider that and you would
14 consider all the other factors like we do and you would
15 come up with ostensibly your view of the options.

16 Q. All right. Let me move on then and
17 talk about monetization as a way of regularizing this
18 process of comparing options.

19 Now I know this has been discussed
20 before. Mr. Snelson, I think you have discussed it on
21 many occasions.

22 I take it you have said in the past that
23 you don't believe, and I guess Hydro doesn't that it is
24 not wise and in some cases it's not possible to
25 monetize externalities.

1 MR. SNELSON: A. We have said that it's
2 not the appropriate way of making planning decisions at
3 the moment, to merely add together internal costs and
4 monetized estimates of the monetary value of external
5 effects, and then try and seek a minimum of the two.

6 Q. If you have Volume 148 of the
7 transcript. I don't know if you need to turn it up.
8 It's at page 26150, starting at about line 15.

9 A. Yes.

10 Q. I think this is your evidence in
11 chief, you say:

12 "What it really boils down to is that
13 even if you were to try to establish a
14 numerical weighting scheme, in
15 establishing that scheme you would have
16 to apply all the same judgments that you
17 end up making with respect to the final
18 decision in the judgmental method of
19 consideration that we were describing."

20 A. Yes.

21 Q. Now, I take it that it would be
22 possible to devise a numerical scheme with respect to
23 the making of decisions as between options?

24 A. I'm sorry, did I hear you say it
25 would be possible or it would be impossible?

1 Q. No, it would be possible to do this.

2 A. Theoretically, yes.

3 Q. I understand your point that it
4 wouldn't be difficult, but if you did do it, it would
5 provide people with some sort of external check on the
6 types of judgments that were being made by planners at
7 Ontario Hydro.

8 A. We had a long discussion in Panel 3
9 as to the reasons why we don't think that is useful.

10 Q. Now, I don't intend to repeat that,
11 but you would agree with me that if there was such a
12 scheme, it would provide an external check?

13 A. It would at least provide the
14 appearance of an external check. I am not sure it
15 would provide a useful check.

16 Q. Mr. Snelson, I just wanted to look at
17 a few instances where, in our view, Hydro has made an
18 effort to monetize the externalities.

19 Can you look at page 14, Exhibit 3, page
20 14-29.

21 MS. PATTERSON: What page?

22 MR. STARKMAN: 14-29.

23 Q. Now, you can see there is a table
24 there, 14-21, LUEC summary for fossil and nuclear
25 options.

1 MR. SNELSON: A. Yes.

2 Q. You see in the text, the second
3 paragraph under options selected to meet base load
4 requirements.

5 [10:42 a.m.]

6 A. Yes.

7 Q. It says, the options considered
8 suitable for planned development base load are, and
9 then there is list of option 1, option 9, option 11.
10 Are you with me there?

11 A. Yes.

12 Q. Three of the six conversion
13 processes, CTU, CC, and AFBC are not suitable because
14 of their high fueling costs. In the unlikely event of
15 large reductions in, excuse me, gas prices, current and
16 forecast, gas-fueled, base-loaded combined-cycle
17 stations could become economic.

18 All right? Now, can you turn to page 27
19 of Exhibit 706, which is the materials that we filed
20 yesterday?

21 A. Which page was that?

22 Q. Twenty-seven. And there is a table
23 entitled, well it says at the top, Cost Ranking
24 Effective Including Externalities.

25 A. Yes, I see the table.

1 Q. What we have done here is combined
2 the cost estimates from figure 14-21 in Exhibit 3 with
3 estimates from the PACE study, excerpts of which have
4 been filed as Exhibits 240 and 244 in this proceeding.

5 THE CHAIRMAN: There is small typo on the
6 front line, I think, the first line of the heading.
7 Shouldn't it be Exhibit 3, page 14-29?

8 MR. STARKMAN: Yes.

9 Q. And I know Hydro doesn't agree with
10 this monetization of externalities. But what you see
11 here is if you accept the monetization done in the PACE
12 study as estimates, then it changes the ranking of the
13 base load options dramatically. Do you see what I'm
14 referring to?

15 MR. SNELSON: A. I think I understand
16 the arithmetic, yes.

17 Q. For example, option 11, the 4 by 881
18 megawatt CANDU goes from first to fifth in ranking
19 when you include the PACE estimates of external cost.

20 A. Yes. Perhaps you can explain
21 something about this table, that the heading appears to
22 indicate that the external costs are of SO(2), NOx, and
23 CO(2) emissions. I don't understand why there is a 2.9
24 for nuclear.

25 Q. Mr. Snelson, I understood, or what we

1 were endeavouring to do was to include the
2 externalities from the PACE study for each of the
3 options.

4 A. So the externalities is broader than
5 the SO(2), NOx and CO(2) in the heading.

6 Q. Yes, I believe so. And the point is
7 that if you do include externalities, it can, and in
8 this case if you accept those numbers, does change the
9 ranking.

10 A. If you were to accept those numbers,
11 then the arithmetic changes the ranking.

12 Q. And that, at least with respect to
13 the type of analysis that was done in the PACE study,
14 you can actually argue with them about whether or not
15 they have properly included or whether they have
16 overestimated or underestimated some of the costs
17 associated with any particular externality.

18 A. You could do that. It would be a
19 very large task.

20 Q. But in other words, it is a far more
21 focussed discussion in terms of the externalities; and
22 the results are very dramatic in terms of the ranking
23 of the various options that spills out from such a
24 discussion.

25 A. This is where you come back to the

1 point that theoretically then there is some advantage
2 to some of these schemes. But when you come down to
3 the practice then you get mired in details. It would
4 be an immense amount of work and may still not be
5 achievable to come up with an accepted range of
6 external costs.

7 Q. Yes, but, Mr. Snelson, what I can't
8 understand is you, meaning Ontario Hydro or the
9 planners of Ontario Hydro, are doing that work in any
10 case. You say it is a tremendous amount of work. I
11 agree with you. But you, meaning Ontario Hydro, is
12 doing that work in any case to analyze the various
13 options and to arrive at a ranking and a plan, the only
14 difference being that when there are numbers attached
15 to it, it is more transparent. It is easier for those
16 looking in to see what type of analysis and judgment
17 was applied.

18 MS. HOWES: A. Well, if one assumes that
19 qualitative analyses are not appropriate, I would
20 disagree with you. I think that where we have
21 quantitative information, a quantitative comparison is
22 made and an analysis is made and judgment is made based
23 on professional experience.

24 And I have, as an environmental person,
25 some concern about monetization because I would like to

1 feel confident that it is based on good science and
2 that the monetization is effectively looking at a full
3 range of environmental effects, not just emissions
4 because I think that skews the information.

5 I would like to feel confident that if
6 one number includes the management of waste, for
7 example, that the other numbers include the management
8 of waste. I agree with you that an externality,
9 addition of externalities changes the rankings. But if
10 it is based on poor science and the numbers are not
11 comparable in terms of the environmental effects they
12 include, then I'm not sure what the value is. It
13 changes the ranking, yes, but is it change in the right
14 direction? Is it ensuring that there is a better
15 environmental call? I'm not sure.

16 Q. Ms. Howes, I agree with you that if
17 it is based on poor science then it can be poor. But
18 our concern is if Hydro's choice of options is based on
19 poor judgment, then we are in the same quandary.

20 All I am suggesting is that if you do it
21 by monetizing externalities, there is some ability to
22 check the science such as it is.

23 A. There is some ability, yes. But I
24 would suggest that there are other environmental
25 effects that no monetization factor has been evaluated

1 for, such as loss of habitat or biodiversity, et
2 cetera.

3 And I would like to feel confident that
4 my judgment was good and valid and that I was looking
5 at broader range of environmental effects than just
6 emissions for which there appears to be a dollar value
7 already evaluated.

8 I don't want to make environmental
9 judgments just based on emissions and effects of
10 emissions. It is incomplete.

11 Q. So, in that you are saying there are
12 some environmental effects which are more capable of
13 monetization than others?

14 A. I suggest yes.

15 Q. And which ones, in your view, are
16 more capable of monetization than others?

17 A. More capable, I might challenge. The
18 literature if you were looking at the PACE study,
19 perhaps has good data for SO(2) and NOx and CO(2) and
20 probably particulates, but I suggest there are other
21 emissions, effluents, wastes that as far as my reading
22 of the PACE study have not been monetized at this
23 point.

24 DR. CONNELL: I have two concerns about
25 this table. I'm not sure whether the panel can help

1 me, or not. If really focuses on adding together the
2 column of externalities and the column of LUECs. A
3 LUEC, as I understand it, deals with the expected life
4 of that particular option including the decommissioning
5 and dismantling.

6 Let's say we are talking about a period
7 of 40, perhaps maximum of 50 years. Perhaps, Ms.
8 Howes, you could tell me from your knowledge of the
9 PACE study whether it assigns the cost to the
10 externalities based on such a finite period.

11 MS. HOWES: I don't recollect in PACE
12 that there was a set time frame. I also don't
13 recognize all of these numbers by any stretch, so I
14 don't know, for example, if the external costs includes
15 some kinds of emission controls on those particular
16 stations. I just am not familiar with these numbers.
17 I remember from PACE a range of numbers for each these
18 technologies.

19 DR. CONNELL: I am concerned that if
20 there were certain environmental effects which
21 persisted for a very long time, say Carbon-14 for one,
22 that it would be misleading to assign to a value to
23 focus just on its impact over a 40-, 50-year period.

24 MS. HOWES: I agree.

25 DR. CONNELL: The other concern I have is

1 that the elements of the LUEC which can be represented
2 by annual cash flow are implicitly discounted. And I
3 wonder if you know whether the environmental impacts of
4 NOx or what have you are similarly discounted.

5 MS. HOWES: I don't recall enough from
6 the PACE study to know that. I would rather doubt it,
7 though.

8 MR. SNELSON: My recollection of the PACE
9 study was that they accepted that once you had
10 expressed things in terms of money, then you should
11 treat them as money. And discounting is an appropriate
12 way of coming up with a present value cost of a stream
13 of money.

14 But within the PACE document is recorded
15 considerable disagreement among the participants as to
16 what is the correct discount rate to use for that
17 discounting and that at least one of the authors felt
18 there should be no discounting and that authors thought
19 there should be a social discount rate of somewhat less
20 than the financial discount rate.

21 So there was a very wide range. And this
22 is where we come back to the way, in my view, things,
23 expressing them in money causes you perhaps to do
24 inappropriate things. It seems to me that it is
25 important that there be gas available, for instance,

1 for future generations. Options that say we will put a
2 very high value on reducing certain emissions today and
3 that say, therefore, we should choose gas-fired
4 options, then maybe we were not putting enough weight
5 on that preservation of that resource for the future.

6 And discounting tends to have some of
7 these effects. I think actual fact in the PACE study I
8 don't believe any values were put on the resource
9 depletion of natural gas. But there are other such
10 factors that have very long-term implications which
11 tend to get discounted had out in a monetary evaluation
12 using discount rates.

13 DR. CONNELL: Thank you.

14 MR. STARKMAN: Q. Mr. Snelson, can we
15 look at page 14-30 of Exhibit 3? I am looking in the
16 bottom. The last paragraph in the centre column starts
17 "In option 3."

18 In option 3, the use of lower sulphur
19 Western Canadian coal results in sulphur
20 dioxide emissions similar to those for
21 option 1. Because scrubbers are not
22 required, the solid wastes for option are
23 half that for option 1. However, its
24 CO(2) emissions are slightly higher than
25 option 1. The difference is in

1 environmental and resource preference
2 characteristics do not offset the higher
3 cost for option 3. Hence, option 3 is
4 not selected.

5 Now, I'm trying to focus here on an
6 example of how Ontario Hydro makes decisions about
7 various options. In this case, your judgment was that
8 the increase in CO(2) plus the increase in cost was
9 more important than cutting solid wastes in half. Is
10 that what it says? Is that your understanding of it?

11 MR. SNELSON: A. That is the judgment
12 that is recorded there, yes.

13 Q. And what I want to know is what is
14 the basis for making that decision.

15 A. As I have said, it was a judgment.

16 Q. It was a judgment. Don't you agree
17 that if you had made an effort to monetize the
18 externalities, to monetize these numbers, there would
19 be some way to determine why or how the judgment was
20 exercised?

21 A. You still have all the difficulties
22 of placing an agreed upon value to the various
23 environmental characteristics, and we have talked about
24 that before.

25 Q. I agree with that. You say, well, it

1 was a judgment, this decision was made. And what was
2 the basis for the judgment?

3 A. My understanding is that this is an
4 option which is burning low sulphur coal without
5 scrubbers, is that correct? I have just got to go and
6 check the characteristics of the option.

7 [10:50 a.m.]

8 Q. Okay. I believe they are on 14-29.

9 A. Essentially this is an option which
10 is building -- it's option 3, it is Western Canadian
11 coal, with SCRs for NOx control, but without FGD for
12 sulphur dioxide control. And the judgment is being
13 made that it wouldn't be appropriate to build a plant
14 without FGD control, even if you had lower sulphur
15 coal.

16 Q. I appreciate that. My question is,
17 what is the basis for the judgment? What forms the
18 judgment?

19 A. Well, it talked about similar levels
20 of SO(2). If you look at the figure 14-20 you will see
21 that actually SO(2) levels are somewhat higher. You
22 are talking about 2.3 grams per kilowatthour versus 1.6
23 grams per kilowatthour, which is nearly 50 per cent
24 higher. You are looking at same level of NOx
25 emissions. You are looking at very slightly higher

1 CO(2) emissions, and about half the CO(2) waste -- the
2 solid waste, and the difference in the solid waste is
3 that there is no solid waste from scrubbers. That's
4 the principal difference factor. And it also is a
5 higher cost, slightly higher cost option, I believe.
6 If we look at the LUEC it's got a cost that is 4.5
7 versus 3.9 for the large coal-fired plant.

8 Q. So, Mr. Snelson, the answer is you
9 looked at SO(2), NOx, CO(2), and the things you just
10 identified, and you said, some are a little higher,
11 some are a little lower, therefore that's the basis for
12 your judgment?

13 A. That was the basis for the judgment.
14 This a judgment that is being made at this stage and
15 whether to carry forward the option into plans.

16 I do believe that if we were to have
17 approval for are -- well, if we were to be seeking
18 approval, a site-specific approval for a coal-fired
19 generating plant, then among the options that would
20 have to be considered at that time would be to revisit
21 this type of decision and this type of judgment as to
22 whether it was appropriate for such a facility to have
23 scrubbers and accept the wastes associated with the
24 scrubbers, or to not have scrubbers and rely upon lower
25 sulphur fuel.

1 Q. Well, if I can just stick on this
2 question. I am not so much interested in the specific
3 option, I am interested in the methodology, the
4 planning process by which options are accepted or
5 rejected. Now, when you describe to us the
6 differences, for example, if you just go back into it,
7 on SO(2), you said it's 1.6 against 2.3; is that right?

8 A. That is the figure that is shown in
9 figure 14-20.

10 Q. Are those differences significant
11 from a planning point of view?

12 A. When we come to evaluate a plan and
13 recognizing that overall sulphur dioxide emissions of
14 the plan will be a very significant factor in deciding
15 upon whether the plan is acceptable, then if one is
16 working with options that have 2.3 grams per
17 kilowatthour of emissions versus 1.6 grams per
18 kilowatthour emissions then that can have a significant
19 impact on the degree of other sulphur dioxide control
20 measures that are necessary in the plan.

21 Q. So that difference you felt was
22 significant?

23 A. It depends on the circumstances. But
24 it is a difference and in some circumstances it may be
25 significant.

1 Q. Now, you mention the cost, one is at
2 3.9 and the other is 4.5, this is on the LUEC, 14-21?

3 A. Yes.

4 Q. And you felt those differences to be
5 significant?

6 A. We are talking about here a
7 comparison between basically relatively similar
8 options. We are talking about different types of
9 coal-fueled options. And what we are looking for here
10 is which is the right coal-fueled option to carry
11 forward into the plan comparison. We are not talking
12 about rejecting this option for all time, we are
13 talking about what sort of coal-fired option to carry
14 forward into the planning process, and the reasons were
15 written down on that page that you read.

16 Q. But then do I take it that the
17 difference between 3.9 and 4.5 was felt to be
18 significant in terms of the comparison of those
19 options?

20 A. In some circumstances that could be
21 considered significant, and it would depend upon, the
22 degree of significance would depend upon what other
23 options, what other differences you were looking at,
24 and whether that was large enough to have a significant
25 part in the decision.

1 Q. But in this case you were comparing,
2 as you said, two relatively similar options. I am
3 trying to find out whether in doing that comparison,
4 and you mentioned the cost or the LUEC, whether it was
5 felt that the difference was significant?

6 A. I believe that in that particular
7 instance it was considered to be significant in that
8 difference.

9 Q. Mr. Snelson, let me ask you, I know
10 you have given lots of evidence on the difficulties and
11 the inappropriateness of monetization. Let me ask, if
12 this Board's decision requires the monetization of
13 externalities, what impact would that have on the
14 planning process?

15 A. I think that one would have to know
16 an awful lot more about the Board's decision on
17 monetization, because if one was just to say as a
18 blanket, one must monetize all external costs, then I
19 don't know how one would do that.

20 Q. What if the decision was to monetize
21 certain specific external costs?

22 A. Then it would depend upon whether
23 there were adequate means of monetizing those
24 particular external costs, and one would still have to
25 apply judgment as to the results as to whether the

1 remaining unmonetized effects influenced decisions in
2 such a way as to counter-balance some of the influences
3 of the cost components that had been monetized.

4 Q. What I am really trying to get at
5 here is what effect would it have on the planning
6 process. In other words, would anything in the process
7 that Hydro presently uses for planning change, other
8 than the difficulties you have identified with the
9 actual monetization. Would the process change in any
10 way that you can see?

11 MS. HOWES: A. I would suggest that
12 there may be some change and there may be no change.
13 We may find that the monetization just verifies our
14 professional judgment that we have used.

15 I think that in order for us, for
16 example, if the Board suggested there would have to be
17 monetization of certain emissions, there would have to
18 be a fair amount of work done, I think, from a
19 scientific basis to try to develop appropriate values
20 in an Ontario scene for the emissions that were
21 identified.

22 So I think there would be some additional
23 work required. It may mean that we may have to put our
24 planning on hold for a while to develop enough
25 information to incorporate those costs. It may change

1 our decisions, it may not. I don't know.

2 Q. Ms. Howes, that additional work would
3 ultimately, I take it, be helpful to Hydro. It may
4 confirm your professional judgment or it may indicate
5 that some modification was necessary in that judgment.

6 A. It's possible it might even be
7 helpful for all decision-making within the Province of
8 Ontario for all industries and the provincial
9 government as well.

10 Q. All right. I take it, you didn't
11 mention it, Mr. Snelson, just on that point, that one
12 of Hydro's concerns about monetization is that they
13 don't want to be the only, if I can put it this way,
14 the only body that's required to do it, because somehow
15 this is, I don't know, not fair or will be a
16 distortion. Have I got that theme sort of that runs
17 through this discussion?

18 MR. SNELSON: A. Yes, I think that the
19 theme that is there that where you have environmental
20 problems that are broad societal environmental
21 problems, where many industries contribute, possibly
22 many jurisdictions contribute in different areas, then
23 it is important that environmental problem be addressed
24 on a broad societal basis.

25 And if, for instance, you have a

1 situation where Ontario Hydro is a small contributor to
2 a larger problem and Ontario Hydro alone attempts to
3 monetize its external effects, or even if we don't
4 monetize our external effects and we take very strong
5 expensive action to reduce our emissions and nobody
6 else is doing so, then you can very well have the
7 effect whereby perhaps we are 10 per cent of the
8 problem, we reduce our effects by a large proportion at
9 very high cost to our customers, and that if there
10 isn't a similar sort of action being taken elsewhere in
11 society and due to growth in the economy and more cars
12 idling at stoplights or whatever, the other emissions
13 are increasing slightly, the net result is that you can
14 be sure that there are higher costs for electricity
15 customers and the environmental problem has not been
16 solved.

17 You have to move forward in a coordinated
18 way on the broad societal front. That doesn't mean to
19 say that you can't be a little bit ahead of everybody
20 else, you can't be a leader, but it does mean that if
21 you go it alone, the effect is going to be higher costs
22 for electricity customers and the environmental problem
23 won't be solved.

24 Q. I was just going to focus on the
25 leadership issue. I mean, Hydro is one of the largest

1 or the largest corporation in the province and one of
2 the largest polluters. You don't see any merit in them
3 be the leader in this fashion.

4 A. I very specifically said that one can
5 be a leader.

6 Q. Dr. Long, I was going to move on to
7 talk about a bit about cost and the role it plays in
8 the planning.

9 I noted that from your curriculum vitae
10 that your education or your Ph.D. was in physics.

11 DR. LONG: A. That's correct.

12 Q. And when you started at Hydro, you
13 were in the - I don't know - engineering trainee
14 operations branch.

15 A. That's correct.

16 Q. I don't know if that is still around,
17 but what area of the Corporation would that have been
18 in?

19 A. If you compare it to the current
20 organization, what was the operation's branch was made
21 up of the nuclear generation division, thermal
22 generation division, and the power system operations
23 division, and I was in the nuclear generation division.

24 Q. And so you were there for about four
25 or five years and then became involved in financial--

1 A. That's correct.

2 Q. --forecasting in around 1980?

3 A. Yes.

4 Q. And just looking at it, in terms of
5 the type of work that was done in the financial
6 projections analyst controller's division, and so
7 forth, I mean, you told us you were not an economist
8 and you take the load forecast from somewhere else.
9 What sort of work would you be involved in on a regular
10 basis?

11 A. There is a variety of things, but one
12 of the key functions in the financial planning area is
13 pulling together financial forecasts. As I described
14 in my direct, that's largely a matter of assimilation
15 of financial results based on sets of assumptions and
16 forecasts, and cost estimates provided by others in the
17 organization.

18 Q. Now, can we look at page 72 of
19 Exhibit 682. Dr. Long, do you have that?

20 A. Yes, I have that, but depending on
21 your question it may be Mr. Dalziel who is the more
22 appropriate.

23 Q. What I wanted to ask was, this table
24 shows an estimate of the costs of the various plans or
25 options that are discussed in the Update, Mr. Dalziel?

1 MR. DALZIEL: A. Yes, it does.

2 Q. And do I understand it correctly that
3 the cost of the most expensive plan is about \$4.6
4 billion more than the base. In other words, you have
5 taken the managed nuclear as the base and the most
6 expensive plan is the unmanaged enhanced plan at 4.6
7 billion?

8 A. You are looking at the bottom line
9 there?

10 Q. I am looking at the bottom line.

11 A. That's what that indicates, that's
12 right.

13 Q. And the total cost of the base plan
14 is 95 billion and the most expensive one is 100.5
15 billion?

16 A. That's right.

17 Q. So between the least cost and the
18 most cost plan, you have got a difference of, as I say,
19 4.6 billion, or some 4 to 5 per cent, say 5 per cent is
20 the difference in costing between the least and the
21 most expensive plan?

22 A. That's right.

23 MR. SHALABY: A. You may want to notice
24 that half that cost or more than that is associated
25 with the existing system, the 50 billion estimate that

1 is put here.

2 Q. Yes.

3 A. All I am indicating is that when you
4 express percentage there is 50 billion common. Perhaps
5 the percentage should better be expressed on the things
6 that are new in the plan rather than the things that
7 are associated with the existing system.

8 Q. Yes.

9 A. And that perhaps could be the line
10 that is indicated total costs of new demand supply.
11 And the relevant number here I think is 25.6 billion
12 for the managed nuclear, and 30 billion for the
13 unmanaged enhanced. So 5 and 25 is a larger proportion
14 than 5 and 100.

15 Q. I don't disagree with that, Mr.
16 Shalaby.

17 Just two comments, one is that we didn't
18 delve into why it's a \$50 billion flat, and I know you
19 have got an asterisk there but I didn't want to get
20 into those, which would obviously be different costs.

21 The other point is, and you would agree
22 with me that bottom line shows the cost to the
23 customer, the difference in the cost to the customer?

24 A. But the middle line I was alerting
25 you to shows the cost to the customer of the decisions

1 that we are looking at over the next several years. I
2 would argue that is the more appropriate line to look
3 at. That's the cost that we have choice in controlling
4 or changing and doing something about it.

5 Q. Now, the question I had, Mr. Dalziel,
6 was whether or not -- Hydro has told us that cost is a
7 very important consideration in developing its plans,
8 you would agree with that, and these differences that
9 are shown here, do you consider them to be significant
10 in terms of being influential in choosing one plan over
11 another?

12 [11:13 a.m.]

13 MR. DALZIEL: A. The cost is certainly
14 one important characteristic of the plan amongst
15 several others that we look at. And whether the
16 difference of 5 billion out of just the total cost or
17 the decisions, sorry, 5 billion cost difference on a
18 base of 25 to 30 billion, I would say is significant.

19 And there are several ways of looking at
20 that. One is in its own right, if it is 25 per cent of
21 the total cost as a result of the decisions in which
22 you are having to make over the plan period, then I
23 would say that 20 and 25 per cent is a significant
24 portion. Then we also look at the significance of that
25 in other ways, as well, such as by examining the impact

1 of electricity prices between the various cases.

2 Q. So you would say that 20 to 25 per
3 cent is significant. It is an important consideration.

4 A. It is an important consideration.

5 Q. And you get the 20 to 25 if you work
6 off the middle line, as Mr. Shalaby said. If you
7 worked off the bottom line and you had a 5 per cent
8 differential, would that, in your view, be significant,
9 from a planning point?

10 A. It is a matter of degree. It still
11 may be significant in that you typically are making
12 decisions one at a time. And I think directionally if
13 your choice of decisions is always taking a higher cost
14 approach then eventually over a period of time, from
15 that point of view alone, you may find that you are
16 headed in the wrong direction.

17 Q. Yes, I don't want to argue that 5
18 billion is a significant number. It is a very big
19 number, so big I really can't even appreciate it. But
20 what my concern is, we are projecting here out over a
21 long period of time. So if you are projecting a \$5
22 billion difference with projections that are stretching
23 out over 25 years, 20 years, given the uncertainties
24 that we all know about and have heard evidence about,
25 is this number significant from a planning point of

1 view that you could rely on this differential to
2 influence the choice of options that have to be made
3 today.

4 DR. LONG: A. One thing to bear in mind,
5 these numbers are expressed in present value. And so
6 while it is 5 billion in 1992 dollars, given that much
7 of that is dollars that are going to be spent out in
8 the year 2017, in those years the \$5 billion represents
9 a very substantial amount of money.

10 I hear what you are saying about
11 uncertainty. There is certainly uncertainty in the
12 future and uncertainty in estimates, but the present
13 valuing technique may tend to give you a number which
14 may appear to be smaller than what it actually may be.

15 Q. I appreciate that, Dr. Long. What I
16 am just focussing on is we are here now trying to make
17 decisions and you have projected certain numbers and
18 numbers and then you say that the numbers are a
19 factor--

20 A. Yes.

21 Q. --in terms of developing the plan or
22 a plan. And I'm asking you whether or not, given the
23 uncertainties associated with the various projections
24 that you must make to arrive at these numbers whether
25 the differences that you are showing are significant to

1 be relied on for planning purposes.

2 A. I think they are significant. One
3 test of that is the sensitivities done on the cost of
4 the plans themselves.

5 Q. Let me move on, then. Can we move
6 along in Exhibit 706. I wanted you to turn to page 2,
7 which you will see is, which is page 17 of a report
8 entitled: Meeting Future Energy Needs, Draft
9 Demand/Supply Planning Strategy Reference Document,
10 Report No. BSRA8702, January, 1987. Have you got that
11 Dr. Long?

12 A. Yes, I do.

13 Q. Now, I know you have had this
14 material for some time. Have you had a chance to look
15 at it?

16 THE CHAIRMAN: I'm sorry, what is the
17 source of this table 4?

18 MR. STARKMAN: It is page 17, Mr.
19 Chairman, of the report that is identified on page 1.

20 THE CHAIRMAN: I see, I'm sorry.

21 MR. STARKMAN: We could file the entire
22 report. My understanding is that it was one of the
23 reports --

24 THE CHAIRMAN: It is a Hydro report?

25 MR. STARKMAN: Yes, a part of the

1 planning strategy.

2 Q. Dr. Long, I would just like to go
3 through this with you because I am concerned about the
4 question of reliability of Hydro forecasts and it is in
5 that context that I want to look at this report which
6 was prepared in January of '87 as part of the planning
7 strategy. Now, it is my understanding that if you look
8 at this table 4 from page 17, it shows the economic
9 costs of 16 different representative cases that Ontario
10 Hydro examined in developing its planning strategy. Am
11 I correct in that?

12 DR. LONG: A. I think that is what the
13 numbers show. I am not overly familiar with the
14 individual plans.

15 Q. Just on the face of it, if you look
16 under mixed, it says that Plan B was the least priced
17 plan and the costs of the other plans were compared to
18 Plan B.

19 A. Plan D?

20 Q. Plan B.

21 A. I think Plan D is the least cost
22 plan, isn't it? It's got an 86.6 present value.

23 Q. I'm just looking at the column on the
24 right which says cost relative to Plan B.

25 A. Okay.

1 Q. All right. Now, Plan P, P like Paul,
2 as I understand it was an all-price plan in which Hydro
3 increased the price of electricity to encourage less
4 electricity use. In that sense, it was the most
5 expensive plan.

6 A. I think that was one element of the
7 plan, yes.

8 Q. Now, if you take Plan P out of the
9 list because it was, if you like, an all-price plan or
10 a predominantly price driven plan, then there is a
11 variance of about between \$7.5 and \$8 billion between
12 Plan B and the next most expensive plan, well, and all
13 the plans, sorry.

14 A. So how much was that, about 7
15 billion?

16 Q. I have got 7.7 billion, a number in
17 that range.

18 A. Okay.

19 Q. So according to my calculations,
20 then, from the best to the worst, excluding Plan P, the
21 values range by about 12 per cent.

22 A. That seems reasonable.

23 Q. Now, Dr. Long, in terms of those
24 plans, are those price differentials or projected price
25 costs, excuse me, differentials significant from a

1 planning point of view?

2 A. I think all other things being equal,
3 certainly.

4 Q. Now, between the time of the
5 preparation of this type of document and Exhibit 3, I
6 take it there has been some changes in the operation of
7 the existing system. I think lower nuclear performance
8 than was originally projected.

9 A. There have been many changes.

10 Q. All right. Can we just turn to the
11 next page, page 3 of this Exhibit 706? This is figure
12 1, Hydro was projecting at that time --

13 THE CHAIRMAN: What is the source of
14 this?

15 MR. STARKMAN: That is the same document,
16 excuse me, page 20 of the document found on page 1.

17 THE CHAIRMAN: It is just a graph
18 depiction of page 2, is that right?

19 MR. STARKMAN: Mr. Chairman, this was a
20 graph that was put into the exhibit to compare prices
21 that would result from various plans.

22 THE CHAIRMAN: I just wanted to know what
23 was the source of the data to plot the lines, that is
24 all.

25 MR. STARKMAN: The source of the graph

1 comes from the same document identified on page 1.

2 THE CHAIRMAN: This is a Hydro graph?

3 MR. STARKMAN: Yes.

4 THE CHAIRMAN: And it is on page 20 of
5 this same document?

6 MR. STARKMAN: Yes.

7 THE CHAIRMAN: All right.

8 MR. STARKMAN: Q. Now, Dr. Long, do you
9 see that figure 1 on page 20?

10 DR. LONG: A. Yes, I do.

11 Q. And now at that time, am I correct
12 that Hydro was projecting that all the plans, with the
13 exception of Plan, P would lead to substantial rate
14 reductions over the next 25 years?

15 A. That was the projection at that time.
16 This was in real terms.

17 Q. Yes, real terms. I understand and
18 appreciate that. So that according to this graph, you
19 are forecasting that by 1992, for example, there would
20 be about a 15 per cent drop in existing rate levels.

21 A. From the 1986 level, that seems to be
22 about right, yes.

23 Q. Yes. And that if you go down to
24 2010, which is at the end of the chart at the end of
25 the graph, you see the index is between 70 and 85 for

1 all plans, with the exception of Plan P, which is the
2 all-price plan.

3 A. That seems about right, yes.

4 Q. All right. And I note that the
5 highest point on the index that Plan P reaches is about
6 115 on the index, do you agree with that?

7 A. Somewhere around, yes.

8 Q. So if you translate that sort of into
9 another language, you are projecting that electricity
10 would be about 15 per cent more expensive in 2010 than
11 it was in 1986.

12 A. For Plan P.

13 Q. For Plan P, which is the most price
14 induced plan, the most expensive plan from a ratepayer
15 point of view.

16 A. Of the list on page 2.

17 Q. And Plan P was a plan by which you
18 were examining what type of price impact would be
19 required to bring about a reduction in demand, is that
20 correct?

21 A. Of a certain amount, yes.

22 Q. Yes.

23 A. Yes.

24 Q. You weren't going to reduce it to
25 zero through price. Now, the last reference I want to

1 make to you is to Plan A, A-D.

2 A. Okay.

3 Q. And that plan, as I understand it,
4 utility had cost effected, all cost effected and then
5 increased prices.

6 A. Okay.

7 Q. And on that plan, the demand
8 management case was expected to create rate decreases
9 of about 20 per cent by 2010.

10 A. From the 1986 level.

11 Q. Yes.

12 A. Yes, that seems to be about right.

13 Q. Now, Dr. Long, can we turn to page 77
14 of Exhibit 682? Now, this is the forecast that you
15 have filed as the overheads to this panel, is that
16 correct?

17 A. That's correct.

18 Q. And it shows a much different
19 electricity price forecast than you were showing back
20 in 1987.

21 A. '87, yes.

22 Q. That's right.

23 A. Yes.

24 Q. In 5 years, from 1987 projecting
25 basically real, projecting decreases in electricity

1 price, in 5 years the forecast has changed
2 dramatically.

3 A. The forecast of real electricity
4 price has changed dramatically, I will agree to that.

5 Q. Now, you can turn to page --

6 A. I covered a number of the factors
7 behind that in my direct evidence, by the way.

8 Q. Can you turn to page 8, Dr. Long, of
9 Exhibit 706?

10 A. I have that.

11 Q. All right. What we have done here is
12 basically take the figure 1, which we referred to
13 previously and superimpose upon it what comes off of
14 page 77, just to show what the differences are in your
15 projections back in '87 and your projections in '92.
16 [11:28 a.m.]

17 THE CHAIRMAN: I am sorry, which page is
18 that? I'm sorry.

19 MR. STARKMAN: I am on page of 8 of
20 Exhibit 706.

21 DR. LONG: This is based on the data from
22 page 4?

23 MR. STARKMAN: Q. Yes, that's right.
24 Page 4 of Exhibit 706 is the data which we used to
25 generate the graph on page 8 of 706. Basically what we

1 did is we took the real electricity price forecast that
2 you have on page 77 of Exhibit 682, which starts with
3 1991 equaling 100 and took it back to 1986 so we could
4 have a direct comparison between what you were
5 forecasting in '86 in terms of electricity price and
6 what you are now forecasting in '91.

7 DR. LONG: A. I have taken a quick look
8 at those numbers, I don't have a problem with that.

9 Q. So that seems to be correct to you?

10 A. That's without the GST numbers.

11 Q. Yes. We endeavoured to take a look
12 at that as well, and that's a graph on page -- yes,
13 without GST numbers, sorry.

14 Now, Dr. Long, these differences that are
15 shown on page 8, some are in the 50, 60, 70 per cent
16 range. The projection of electricity in 1992 are 50,
17 60, 70 per cent higher, or 50, 60, 70 per cent
18 different than they were in '86.

19 A. Again, I would emphasize that these
20 are real rate projections, but yes, I guess depending
21 on what base you use to measure it, there are some very
22 substantial changes in the long term real electricity
23 price index.

24 Q. Yes. And doesn't that there is
25 great, great uncertainty and difficulty about making

1 these sorts of projections?

2 A. Long-term financial projections are
3 subject to significant uncertainty, I will agree to
4 that.

5 Q. But these differences that are being
6 projected here have nothing whatsoever to do with the
7 selection of any particular demand or supply options?

8 A. Oh, they certainly do.

9 Q. These?

10 A. Sorry, the differences?

11 Q. The differences.

12 A. A very substantial component of the
13 recent change in the forecast of real electricity price
14 is in fact the heavy emphasis on demand management and
15 the NUG programs, and I included that in my direct
16 testimony.

17 Q. And it is also very influenced by
18 Darlington.

19 A. That's a factor. Darlington was also
20 a factor in the projections done back in '87 as well.

21 Q. And it has also been influenced by
22 nuclear performance.

23 A. Yes. There have been a number of
24 factors as I indicated.

25 Q. So all of those factors which have

1 come to light or have changed in the last five years
2 have had this dramatic impact on the forecast?

3 A. Yes. I would note another one that's
4 quite significant over that period and that's the
5 forecast of inflation, because this is a real
6 electricity price index. When inflation drops, because
7 a significant fraction of Hydro's costs are fixed and
8 relatively insensitive to inflation, that as inflation
9 drops the real price of electricity goes up and vice
10 versa.

11 Q. The point I am trying to make here,
12 there is a myriad of reasons which you have identified
13 and discussed as to why this forecast changes.

14 A. That's correct.

15 Q. But this is an example of a very
16 dramatic change in a forecast.

17 A. Yes.

18 Q. So if you had relied on the numbers
19 in '87 to form decisions, then you might have been very
20 mistaken because the circumstances have changed
21 dramatically in a short period of time?

22 A. As I indicated in my direct, the key
23 financial criteria is low cost to customers, and the
24 key means of getting a handle on that are the present
25 value cost estimates like the ones included in page 2

1 of your package. And I guess it's difficult, without
2 going back and doing comparisons to see how they have
3 changed, but the changes in the electricity price
4 forecasts is one thing. Whether or not those costs
5 change and whether or not the ordering of those costs
6 change I think is quite another.

7 MR. STARKMAN: Mr. Chairman, this might
8 be a convenient time to break.

9 THE CHAIRMAN: All right, we can take a
10 15-minute break.

11 THE REGISTRAR: Please come to order.
12 This hearing will recess for 15 minutes.

13 ---Recess at 11:35 a.m.

14 ---On resuming at 11:50 a.m.

15 THE REGISTRAR: Please come to order.
16 This hearing is again in session. Be seated, please.

17 THE CHAIRMAN: Mr. Starkman?

18 MR. STARKMAN: Thank you, Mr. Chairman, I
19 just had two further questions on the area of
20 economics.

21 Q. Dr. Long, could you turn back to page
22 77 of Exhibit 682?

23 DR. LONG: A. I have that.

24 Q. That's the real electricity price
25 forecast.

1 You mentioned that the reason for some of
2 these increases was related to demand management and
3 nuclear performance and Darlington in-service dates and
4 so forth. I just wanted to be clear that in the rise
5 that's shown or the increase shown for the years 1991
6 and 1992, the beginning of the chart, these rises are
7 predominantly related to Darlington?

8 A. I don't have the details for each and
9 every year, but you will probably recall the discussion
10 with Mr. Shepherd, that certainly for 1993 I think we
11 identified that about three quarters of the rate
12 increase that's currently before the OEB was associated
13 with Darlington.

14 Q. Yes.

15 A. This projection was put together
16 before that rate proposal, so the numbers here will be
17 slightly different. But certainly for '93 I think a
18 significant piece of it is again associated with
19 Darlington. For the other years I would have to go
20 back and check some analysis.

21 Q. And for the years subsequent to 1993
22 when you are proposing large expenditures for DSM and
23 NUGs, the projected rates are relatively flat?

24 A. Beyond about, I think the peak is
25 around '94 or '95 and beyond that for a number of years

1 projected real rates are flat, yes.

2 Q. Now, the last question I had on the
3 economics, I think it is Mr. Snelson. Can we look at
4 page B-7 of Exhibit 646, that's the supplementary
5 witness statement, table starts off comparison of
6 options, levelized cost.

7 MR. SNELSON: A. I have that.

8 Q. And under the line Manitoba Purchase
9 transmission.

10 A. Yes.

11 Q. Here I take it Hydro is indicating
12 that it would be 4.7 cents per kilowatthour at 80 per
13 cent average capacity factor, and 5.3 cents per
14 kilowatthour at 65 per cent average capacity in 1991
15 dollars?

16 A. Yes, those are figures taken from the
17 recent Manitoba Purchase re-evaluation.

18 Q. Yes. And that the 80 per cent factor
19 is with the incremental energy, the 65 per cent is
20 without?

21 A. Supplementary energy I think is the
22 phrase, yes.

23 Q. Yes. Now to me that shows there is
24 about a 12 per cent difference in cost between those
25 two numbers.

1 A. You have divided 5.3 by 4.7 and
2 determined a 12 per cent difference?

3 Q. Yes.

4 A. That appears about right.

5 Q. And is that type of difference, is
6 that a significant difference from a planning
7 perspective?

8 A. No, because LUECs are very limited in
9 their usefulness in comparing the capacity factors of
10 options of different capacity factors. They are
11 comparing the costs of options of different capacity
12 factors.

13 Q. Just to be clear, it's not a
14 significant difference and it wasn't a factor that you
15 took into account in developing the plan?

16 A. Because the LUECs at different
17 capacity factors are not comparable.

18 THE CHAIRMAN: Are not what? I'm sorry.

19 MR. SNELSON: Are not comparable.

20 MR. STARKMAN: Q. I wanted to move on
21 and talk about various uncertainties that we see that
22 have might affect the plans, and the one I want to
23 start off with is load forecasting, which I believe,
24 Mr. Snelson, you identified yesterday as being one of
25 the primary uncertainties which could influence the

1 shape or direction of Hydro's plans.

2 MR. SNELSON: A. Certainly load
3 forecasting has significant uncertainty and it is one
4 of the largest uncertainties we face.

5 Q. Now, I don't know if these questions
6 are for you or Mr. Shalaby who I believe talked about
7 this previously. But Mr. Shalaby, you in your evidence
8 had summarized the evidence of Panel 1 and briefly
9 discussed the 1990 load forecast update, which is
10 Exhibit 467.

11 Can you look at page 9 of our materials,
12 Exhibit 706? What we have done here is summarized the
13 information from Exhibit 467, and tried to compare it
14 to the actuals for 1990 and '91, which were taken from
15 Hydro's annual reports. Have you got that table?

16 MR. SHALABY: A. Yes.

17 Q. You can see that for 1991 there was
18 an actual energy demand of 137 terawatthours. Do you
19 see that on the right?

20 A. Yes.

21 Q. The right column. And If you look
22 over to the left you see the energy forecast figures
23 and for the median you see the forecast was 141.4
24 terawatthours?

25 A. Yes.

1 Q. And for the upper 144.9, and for the
2 lower, 138.3.

3 A. Yes.

4 Q. So according to these numbers, we are
5 already under the lower bandwidth from last year's
6 updated load forecast; am I correct on that?

7 A. If these numbers are correct, you are
8 correct on that, yes.

9 Q. And in your planning methodology we
10 are told that the probability of that happening was
11 less than 10 per cent?

12 A. That's what the bands indicate, yes.

13 Q. Now, if you turn to the next page,
14 page 10, what we have done here is simply plotted a
15 table from page 9 on a graph, and according to our
16 analysis, you can see that to reach any of the bands we
17 have tried to calculate how much growth would have to
18 take place to the end of 1991 and the year 2000 in
19 order to fit Hydro's forecast?

20 A. I have an observation on comparing
21 the numbers, and that is you are plotting the basic
22 forecasts. The actual by definition has to be primary.
23 So you can't measure the basic, you can only measure
24 the primary. A more appropriate comparison, I suggest,
25 perhaps could be primary versus the measure rather than

1 projecting the basic and putting the measurement on.

2 THE CHAIRMAN: Are you back on page 9
3 now?

4 MR. SHALABY: Either 9 or 10. It's the
5 same information, Mr. Chairman.

6 The point I am making is that the actuals
7 are primary loads, while the projects plotted are basic
8 which do not include the effects of demand management
9 and load displacement NUGs. You appreciate the
10 difference between the two.

11 MR. STARKMAN: I do appreciate the
12 difference.

13 MR. SHALABY: For that reason, the
14 comparison between them is not as valid as comparing
15 primary versus measured load.

16 MR. STARKMAN: Q. Mr. Shalaby, in your
17 view would that difference that you have identified be
18 significant?

19 MR. SHALABY: A. That word again,
20 significant.

21 Q. Well...

22 A. You want it to work in your favour
23 this time, do you? [Laughter]

24 In 1990 and '91 the difference is not, in
25 my view, significant.

1 I am yet to see what question you are
2 going to asking. I just want to identify that first
3 and then if I can answer, then of course it will be
4 significant.

5 Q. In 1991 the difference wouldn't be
6 significant?

7 A. Not very much.

8 Q. And in subsequent years --

9 A. Something like perhaps 200 megawatts
10 that we looked at the results of demand management.

11 Q. All right.

12 A. Load displacements NUGs, I don't know
13 how much that would be.

14 Q. And you would agree with me that in
15 terms of the type of forecasting that goes into
16 these -- that Hydro's does, in a long terms forecast if
17 you have differences in the initial years, whether they
18 be lower or greater, this is going to compound in
19 subsequent years. So a forecasting error in the
20 initial years of the forecast have a much greater
21 impact on what happens down the road?

22 A. Everybody yesterday said they are not
23 an economist--

24 MR. SNELSON: A. I wouldn't accept that.

25 MR. SHALABY: A. --and I may admit that

1 I am 1 per cent economist. I have taken a bunch of
2 economics courses.

3 But still I, like Mr. Snelson, don't
4 accept that.

5 I think you have to look for the reasons
6 for the reduction in the initial year. If it is
7 something that will bounce back, then it may not have a
8 lasting impact; if it's something that permanent that
9 will affect every year from here on it, then perhaps it
10 will have an impact into the future.

11 So the reason for the reduction I think
12 is something you have got to look into.

13 Q. Mr. Snelson, did you want to -- or
14 did Mr. Shalaby answer it for you?

15 MR. SNELSON: A. Mr. Shalaby has largely
16 indicated the reason.

17 What this figure shows to me is that
18 electricity's demand, demand is very low at the moment
19 and that is exactly what you would expect in the middle
20 of a severe recession.

21 Q. And what you are indicating is that
22 if and when the economy emerges from the recession, it
23 may experience an accelerated growth, if you like, to
24 make up for the lower than projected demand in certain
25 years?

1 A. I think that the load forecasters
2 would indicate that their forecast is based upon their
3 view as to the sustainable long-term growth of the
4 economy and growth in long-term trends, and that
5 recessions and booms are not explicitly factored into
6 that forecast beyond the next year or two, and so you
7 expect to be towards the low end of the band in a
8 recession and you expect that you might deviate towards
9 the upper end in the boom.

10 Q. Mr. Shalaby, can we look in Volume
11 148, at page 26118. Looking here at about line 16, the
12 sentence that beginning:

13 "The economic activity measured by the
14 GDP, or gross domestic product, for
15 Ontario is projected for .7 per cent
16 lower by the year 2000, and about 2.6 per
17 cent lower by the year 2015.

18 "So these two factors resulted in a
19 lower basic forecast in the Update, and
20 the reduction by the year 2000 is about 5
21 per cent, which is about 1.5 gigawatts in
22 the peak, and by the year 2000 it's about
23 6 or 7 per cent, which is 2.7 gigawatts
24 in the peak demand."

25 THE CHAIRMAN: That 2000 must be a

1 misprint. Wouldn't it be 2015? The last 2000.

2 MR. SHALABY: Yes, it should be 2014.

3 THE CHAIRMAN: 14?

4 MR. SHALABY: 2015 at the end of the
5 period.

6 MR. STARKMAN: Q. Now, Mr. Shalaby, can
7 we turn up page 4 of Exhibit 467, which is the update
8 to the 1991 long-term load forecast.

9 MR. SHALABY: A. Page 4?

10 Q. Page 4 of Exhibit 467. And you see
11 there at table 2.1.2?

12 A. Yes.

13 Q. And these are the projections of real
14 GDP growth in Ontario included in the Update; correct?

15 A. Yes.

16 Q. And it appears to us that, at least
17 when this was prepared in December of 1991, that the
18 economics and forecasting division projected a 3.9 per
19 cent growth for 1992 and a strong growth through the
20 mid-90s.

21 A. Yes.

22 Q. Now, can you turn up page 15 of
23 Exhibit 706.

24 [12:06 p.m.]

25 And this is an extract from the 1992

1 Ontario budget brought down in April, end of April,
2 '92. And it says under highlights that Ontario's real
3 gross domestic product is expected to increase to 1.4
4 per cent in '92 and by 3.9 per cent in '93.

5 Now, the government's projections as we
6 noted or note from this document are significantly
7 lower than Hydro's projections for '92.

8 MR. SHALABY: A. Those numbers indicate
9 that, yes.

10 Q. And these projections were brought
11 out approximately four months later than Hydro's
12 projections in Exhibit 467?

13 A. I'm not certain of that. I don't
14 know whether the timing is exactly that, or a few
15 months longer or shorter.

16 Q. And with these projections brought
17 out by the provincial government, do you still feel
18 confident in the projections that Hydro presented in
19 Exhibit 467? Or if Hydro --

20 A. I think based on -- it's is difficult
21 to judge the validity of an economic forecast based on
22 the one year that we are in, 1992, based on two
23 different forecasts. First of all I can't say express
24 an opinion as to whether this, the comparison between
25 these numbers and the ones in the loads forecast, that

1 they measure the same thing. Even in the GDP sometimes
2 is measured in different terms.

3 But assuming that it's the same terms,
4 forecasters make different assumptions and come to
5 different conclusions.

6 Q. So you don't know whether or not
7 Hydro, if they were bringing out a forecast now,
8 talking about in June, would change it from the data
9 that was presented in Exhibit 467.

10 A. I think the Ontario Energy Board
11 hearings have received updates to Hydro's estimates for
12 economic growth.

13 Q. Yes. Why don't we turn to those.
14 They are on page --

15 A. What a lead in.

16 Q. Well, it is useful when you get this
17 material to the panel in advance. What is following in
18 Exhibit 706 starts on page 17, starting at page 16 is
19 an Exhibit No. 2.1.5, which was filed in May, '92, at
20 the Ontario Energy Board, and it's Hydro's short-term
21 load forecast report.

22 And if you turn to page 3 of that report,
23 you see a table entitled: Economic Forecast
24 Comparison. And, Mr. Shalaby, if you look at the year
25 1992, it is shown there on under the first column,

1 Ontario GDP, you see that Hydro has taken the forecast
2 to be 3 per cent.

3 A. That is correct.

4 Q. Which is higher than the government's
5 but lower than in the number in Exhibit 467.

6 A. Yes.

7 Q. So in the space of December to May,
8 four months or five months, Hydro has revised its
9 forecast.

10 A. Yes.

11 Q. Now, I know you don't like the
12 question of significance, but do you view that revision
13 as being significant from a planning point of view?

14 A. Not from long-term planning point of
15 view, no.

16 Q. And you don't think that it has any
17 significant impact upon the type of plans that you are
18 developing what the short-term forecast might be?

19 A. They have an impact. The comment I'm
20 making is a reduction from 3 point something to 3 per
21 cent in one year in itself without understanding the
22 reasons behind it and whether the reasons are
23 persistent, or not. In my view, it does not impact on
24 long-term plans. That's the only view I am expressing.

25 Q. Just so I can have an idea, you know,

1 one-term forecast, what type of reduction would be
2 significant?

3 A. The reductions we have had, for
4 example, in load growth since 1989.

5 Q. Yes.

6 A. 1990. We virtually had the same
7 demand, flat demand over the last 3 years or so. That
8 is a reduction of, say, 10 terawatthours in demand that
9 may be not recovered in the future years. So that has
10 an impact. Three years of cumulative flat growth and
11 demand would impact on long-term plans, yes.

12 Q. So those were significant and that is
13 in part one of the reasons that you brought out the
14 Update.

15 A. Yes.

16 Q. If it should turn out that in 1992,
17 rather than having the 3 per cent that is predicted by
18 Hydro you had a continuation of the types of demand
19 that existed in '89, '90, and '91, would that be of
20 significance to you in planning?

21 A. It would make the event that is
22 already significant even more significant, yes.

23 Q. And would it cause you in any way to
24 change or modify your plans?

25 MR. SNELSON: A. There is an

1 intermediate step that is being missed from this
2 discussion, Mr. Starkman. And that is you do not go
3 directly from an examination of loads today, and loads
4 over the last two or three years to what effect does it
5 have on long-term plans. The intermediate step is all
6 sorts of analysis that was discussed by Mr. Burke and
7 Mr. Rothman with regard to forecasting in which you try
8 to analyze and understand the reasons for the changes
9 and the degree to which those are short-term cyclical
10 effects which may have little or no effect on the
11 long-term, and the degree to which those are changes in
12 underlying trends in the economy and in the way energy
13 is used in the economy. And whether those can be
14 projected out into the future.

15 So there is this forecasting intermediate
16 step. And so you can't go directly from consideration
17 of how many per cent lower would it have to be this
18 year to change a plan in 2010. You have to go through
19 that intermediate analysis that is done by the
20 forecasting people.

21 Q. So that analysis, you don't do it,
22 you accept it from the forecasting people as to whether
23 or not that type of change has taken place.

24 A. Yes. But we typically, as Mr.
25 Shalaby has pointed out, then the longer a change is

1 sustained, then the more likely that is to come through
2 as being a changing trend rather than a cyclical
3 factor.

4 Q. So really what it means is you don't
5 really care so much what the long-term forecast is
6 because it doesn't matter what it is. All you are
7 interested in is does it indicate a systemic change?
8 And you don't make that determination; that is made by
9 someone else.

10 A. No, we are very interested in what
11 the long-term forecast is, because it is the long-term
12 forecast which is one of the primary drivers of the
13 plans.

14 Q. Can we look in the same memorandum.
15 There is something that confused me a little bit on the
16 previous page, on page 17 of Exhibit 706. Under where
17 it says No. 1, comparison of actual load to December
18 10, 1991, load forecast. The second sentence, begins,

19 In October, the primary load forecast
20 was revised to include the energy impact
21 of fuel switching. However, at the same
22 time the forecast for EEI was reduced by
23 amounts that were more than the FS was
24 increased between 1991 and 1994 and less
25 thereafter. The reductions in EEI

1 reflected overlaps with the FS program.

2 Now, the reason I was confused, I don't
3 know, Mr. Shalaby, if you can comment on this. I
4 thought I understood from your evidence in chief in
5 your overheads that there have been no reduction at DSM
6 portfolio other than load shifting and discount demand
7 service adjustments. Other than those two, there have
8 been no changes from the Panel 4 evidence.

9 A. My evidence was that from the time of
10 Panel 4, Panel 4 indicated the fuel switching impact.
11 And what this paragraph is showing, that together with
12 fuel switching, the overlap between fuel switching and
13 energy efficiency was removed. And that is exactly
14 what Panel 4 indicated, as well.

15 A simple example was improving the
16 efficiency of an electric water heater. If you are
17 going to switching it to gas, you cannot also count
18 making it more efficient.

19 Q. Well, if you say there is no
20 contradiction, I might be satisfied. I am just
21 focussing on the words the forecast for EEI was reduced
22 by amounts that were more than the fuel switching was
23 increased.

24 A. But the reason I feel it is no
25 contradiction is the words before that say at the same

1 time. At the same time. At the same time what? At
2 the same time the impact to fuel switching was
3 incorporated.

4 Q. All right.

5 A. And Panel 4 spoke about fuel
6 switching and specifically about the overlap, the
7 removal of energy efficiency potential that would be
8 switched to other fuels.

9 Q. All right. I wanted to talk briefly
10 about the evidence you presented concerning
11 extrapolations to the year 2017. First I wanted to
12 just read to you from Volume 6 at page 1073, which was;
13 I believe it was Mr. Burke giving evidence on the load
14 forecast. And this is what was, this is what he said
15 at page 1073. The question was:

16 "We are just trying to see where your
17 forecast was headed, if the trends in
18 your forecast -- or in the trend of
19 trends continues.

20 "And you are telling me there is no
21 reason to assume that the trends in your
22 forecast will persist; is that fair?

23 And the answer was:

24 "Yes, that is fair."

25 "QUESTION: Okay. So, you would take

1 a vertical line at 2015 and put it
2 through that graphic and say, beyond
3 that, you don't know where the line is
4 going to go?

5 The answer is:

6 "We don't, at this point. I think it
7 is also fair to say that if we were to
8 make such a forecast, we wouldn't be
9 forecasting that at 2015. Something
10 magical happens and we have some radical
11 break with what the trends had been up to
12 2015.

13 "But to suggest that whatever trend
14 had been occurring before 2015 is what we
15 would then find is, I think, going
16 further than we could do at this point.
17 And then later at page 1075, the question
18 is again:

19 "...you aren't prepared to say that
20 beyond 2015, it would continue in the way
21 we have shown it here."

22 And the answer to Mr. Burke is, "No."

23 Mr. Rothman says:

24 "No, I am not."

25 I thought the evidence was clear from Mr.

1 Burke and Mr. Rothman that they weren't prepared to say
2 anything about what happened after the year 2015 and
3 that it was not proper to assume that matters would
4 unfold after 2015 in the way they predicted them to
5 underfold to that date.

6 - Now, can we look at Exhibit 646. At
7 table A-1 on page C1-3. Load and capacity table, 1992,
8 update load and manage surplus, median load forecast.
9 Do you have that, Mr Shalaby?

10 A. Yes, I do.

11 Q. Now you see in this table that the
12 basic 20-minute peak load and the primary forecast,
13 which is the first item, I am looking at the first item
14 in the column, basic 20-minute peak load and planning
15 firm loads, which is the about six or eight down has
16 been extrapolated out to the year 2016 and 2017.

17 A. Yes.

18 Q. And it is the same for all your cases
19 that you examined, you extrapolated out to 2016 and
20 2017.

21 [12:25 p.m.]

22 A. Yes, that's correct.

23 Q. But I am also correct that you don't
24 have a load forecast that goes beyond 2015?

25 A. That's what I was checking. No, we

1 don't.

2 Q. So if you don't have a load forecast,
3 what information did you use to extrapolate for the
4 years 2016/2017.

5 MR. DALZIEL: A. Generally the way that
6 it is done is to look at the last few years of the load
7 forecast, the rate of growth in those last four years,
8 average it and then apply it for the extra one or two
9 years in this case.

10 A similar thing was done in the 1989
11 Demand/Supply Plan. At that time the load forecast
12 actually only went out 20 years. So even for Exhibit
13 3, the last five years of the load forecast were
14 extended five years by using that type of an approach.
15 And then that's also applied to the demand management
16 estimates, the non-utility generation estimates.

17 Q. You are talking about on this table,
18 that's how it was done?

19 A. Yes.

20 Q. But the load forecasters said you
21 can't use their load forecast to do any of that sort of
22 extrapolation.

23 A. I think they are indicating that
24 their load forecast is covering, at least now it is,
25 it's generally covering a 25-year period. It was an

1 update to a 1990 load forecast went out 25 years to
2 2015. So I think they clearly are saying they are only
3 prepared to have speak to the year 2015.

4 Q. But the planners were prepared to go
5 beyond that?

6 A. For the purpose of looking at a
7 25-year period from 1992.

8 Q. All right.

9 MR. SHALABY: A. I took the quotes that
10 you read back from the load forecasting panel to be in
11 the spirit of, what can you tell us beyond 2015 meaning
12 the long-term beyond that, 2030 or 2040.

13 I think if you asked the question of what
14 would happen in 2016, you probably would not get as an
15 affirmative a no as you did when you are saying beyond
16 2015.

17 So I interpreted that to be, what about
18 the next 25 years rather than what about the next year,
19 the very next year.

20 Q. Mr. Dalziel and Mr. Shalaby, could
21 you turn up page 13 of Exhibit 706.

22 What we have done here is an
23 extrapolation out over the long-term, as to where it is
24 we are headed based on the load-forecast and your type
25 of extrapolating to the year 2017. You see we have

1 done it for the median, or the actuals up to '90,
2 actual median and then the lowers and the uppers.

3 My question for you as planners is, if
4 you project these sorts of demands, are you concerned
5 about where the system is headed over this longer term?

6 A. I think I just finished saying that
7 we feel confident to fill in one or two years beyond
8 the end of the forecasting period, and we typically
9 consult with the load forecasting people on that.

10 I just finished saying that it's looking
11 at the next 25 years that you now have to sit and
12 perhaps accept the answers of the economists. They
13 don't know what about the next 25 years.

14 So extrapolating for such a long period
15 of time is a very different nature than extrapolating
16 one or two years beyond the end of the forecasting
17 period. These are not the same things at all.

18 Q. All right.

19 Mr. Snelson, I wanted to talk a bit
20 about -- move on to another area. And this has to do
21 with the projected surplus of between 4 and 5,00
22 megawatts by the year 2000.

23 I wanted to ask you whether or not it
24 could turn out that the surplus is even larger than you
25 are projecting?

1 MR. SNELSON: A. This is a potential
2 surplus because we intend to take action to actually
3 prevent the surplus getting that large.

4 But if the question is, could the
5 potential surplus be larger than that, then clearly if
6 the load was to be significantly below the median load
7 growth, then the potential surplus would be larger. In
8 addition, if demand management was to be more
9 successful than forecast, the potential could be,
10 potential surplus could be larger.

11 There is a variety of reasons it could be
12 larger or smaller.

13 Q. And I wanted to talk a bit about
14 reserve margin and its impact upon the potential
15 surplus. Can you turn --

16 A. Yes.

17 Q. Can you turn to Volume 149, at page
18 26366.

19 A. Yes.

20 Q. I am just looking at starting about
21 line 10:

22 "Mr. Taborek on Panel 2 discussed
23 reliability based on Exhibit 87, and he
24 showed that there was a need to balance
25 the cost of providing additional reserve

1 with the cost to customers if the supply
2 of electricity is unreliable."

3 A. Maybe I have the wrong page because I
4 don't seem to find those words.

5 Q. 26366 at line 10.

6 A. I have an additional 3 instead of one
7 of the 6s.

8 Yes, I think I found the spot.

9 Q. "The result of this balance was a
10 need for a reserve level of between 20
11 and 24 per cent, and with an associated
12 unsupplied energy of about 10 system
13 minutes."

14 Now, if you go over to the start, on the
15 next page, start of the first paragraph, you say:

16 "Now, the mix of options that are in
17 the Update Plan are somewhat different to
18 the mix of options that were in the '89
19 Demand/Supply Plan and the studies on
20 which Exhibit 87 was based. And so there
21 is the theoretical possibility that a
22 plan with a different mix of options may
23 require a different level of reserve.
24 And so we checked that for a
25 representative case, one of the managed

1 surplus cases, and the analysis showed
2 that in all years the unsupplied energy
3 was less than 10 system minutes, and
4 that's the basis for our conclusion that
5 this would provide adequate reliability."

6 First, Mr. Snelson, I would like to know,
7 did Hydro actually run the frequency and duration
8 models for the Update plans?

9 A. We ran it for one case and that was
10 discussed with the MEA in their cross-examination.

11 Q. You actually ran the model?

12 A. Yes.

13 Q. Not just a check?

14 A. We ran the model so that we could
15 perform a check.

16 Q. Have you provided the results of that
17 run to this panel?

18 A. The MEA asked for those results in a
19 transcript undertaking.

20 Q. But you didn't run it for any of the
21 other plans or scenarios?

22 A. We ran it for one of the managed
23 surplus cases.

24 Q. Now, can you turn to page C1-3 of
25 Exhibit 646. Mr. Snelson, from this I just wanted to

1 identify, you see the line that says planning firm
2 load, a couple of lines up from the first solid line?

3 A. Yes.

4 Q. And then the line that says total
5 generation near the bottom, four up from the bottom?

6 A. Yes.

7 Q. Now, can you keep that page and turn
8 to page 26 of our materials. What we have endeavoured
9 to do here is to take those numbers and to calculate
10 the type of reserve margins that result.

11 A. That should give - if it's done
12 correctly - it should give the line at the bottom of
13 the page that says actual margin.

14 Q. Yes. That's what we have done for
15 the actual margin, we have reproduced that.

16 A. Oh,

17 Q. Now, on the right-hand side of the
18 page we have done the calculations to try and calculate
19 what effect a planning reserve margin of something less
20 than 24 per cent would generation, would require. We
21 have done the lines for 20 per cent, 18 and 16.

22 Mr. Snelson, these are calculations of
23 net savings.

24 A. Yes.

25 DR. CONNELL: These are in megawatts?

1 MR. STARKMAN: Yes, Dr. Connell.

2 DR. CONNELL: So it's capacity, really?

3 MR. STARKMAN: Yes.

4 MR. SNELSON: Yes.

5 MR. STARKMAN: Q. Now, the numbers vary,
6 but as I recall Mr. Taborek's evidence and you repeated
7 it, I believe, in your evidence, that he was looking at
8 a reserve margin between 20 and 24 per cent. That's
9 the number that he repeatedly talked about in his
10 evidence?

11 MR. SNELSON: A. That is correct.

12 Q. Now, just by reading on this table,
13 am I right that if we have calculated the numbers
14 properly, in the year 2014, if you used a 20 per cent
15 reserve margin, you would have a net saving in
16 generation of 1,427 megawatts?

17 A. That's the calculation you have. I
18 haven't checked that particular figure.

19 Q. All right. That's fine. And at 18
20 you would save about 2,000 megawatts?

21 A. Yes. I don't think that in either
22 case the reliability of the plan would be satisfactory.

23 Q. All right. But if this Board were to
24 determine that a proper or an appropriate planning
25 reserve margin was something less than the 24 per cent

1 that Ontario Hydro is recommending, then this would
2 both increase the surplus and result in net savings
3 over term of the planning horizon.

4 A. If you reckon on a lower reserve
5 level, then you will show a higher level of surplus.
6 Whether that's net savings, if it results in
7 unacceptable reliability to our customers, I don't
8 believe that would be net savings.

9 Q. Yes. I don't intend to revisit that
10 argument. We have already been through that
11 discussion.

12 I am just saying that if the Board
13 accepts or recommends a lower planning reserve, then it
14 will increase the surplus.

15 A. That is the effect that is strict
16 arithmetic.

17 Q. And what other changes could you see,
18 or can you comment on that would be required in the
19 plans if a lower reserve margin is recommended?

20 A. If lower reserve margins are
21 recommended, then one would tend to cut out of plans
22 peaking type of options, particularly things like
23 combustion turbine units which are there principally
24 for maintaining reliability during periods of heavy
25 system stress. But as I have said, I think you would

1 end up with increasing unreliability to customers.

2 Q. All right. Mr. Snelson, can we turn
3 to page E2-4 of Exhibit 646. This is the table A1,
4 load and capacity table, update, median load growth,
5 no-approval scenario.

6 You see at the bottom of that table, I
7 think it is in the last line, they are recording the
8 actual reserve margin, actual margin it's called?

9 A. I see the line, yes.

10 Q. All right. Now, we compared this,
11 the no-approvals and the managed surplus cases --
12 excuse me, managed nuclear surplus cases, and the
13 reserve margin seemed to be almost the same.

14 A. The no-approvals case?

15 Q. Yes.

16 A. And the?

17 Q. The managed surplus nuclear cases--

18 A. Yes.

19 Q. --have almost identical reserve
20 margins?

21 A. I believe they were intended to have
22 reserve margins that were quite close.

23 Q. So whether or not you put Manitoba
24 into the plan, the reserve margins remain just about
25 the same. That's the effects of what you are telling

1 me?

2 A. We haven't accounted in these plans
3 for any difference for that reason.

4 Q. I don't really understand the answer.
5 You say we haven't accounted in the plans for any
6 difference.

7 A. I don't think that we have, in
8 drawing up these plans, have said that because of a
9 different mix of options in these two plans that we
10 would aim for a different reserve margin.

11 Q. But wouldn't it be, if you get the
12 approval for the Manitoba Purchase, wouldn't this
13 change your thinking in planning about the required
14 reserve margin?

15 A. It could have a small impact on it.

16 Q. But you didn't account for that at
17 all in the planning process?

18 A. No. I believe that the reliability
19 of the Manitoba Purchase is considered to be very high,
20 and that in fact if we didn't have the Manitoba
21 Purchase we would probably -- if you had to account for
22 the effect, its tendency would be to a small increase
23 in the reserve margin.

24 We have contractual terms in the purchase
25 that require Manitoba to make that power available to

1 us on a very higher proportion of time.

2 Q. Exactly. So all I am suggesting is
3 if you had the Manitoba Purchase, I am not supporting
4 it, but I am just saying from a plan, I am trying to
5 look at the way you plan, you are saying even though it
6 will have high reliability and high dependability, it
7 doesn't decrease the reserve margin that's required.

8 A. And that is where we came from that I
9 said that we had not accounted for it.

10 THE CHAIRMAN: Did I understand you
11 correctly that if you didn't have the Manitoba
12 Purchase, that you might then be considering raising
13 the margin from 24 per cent to a higher figure?

14 MR. SNELSON: I would have to check the
15 terms of the contract, but my understanding is that
16 they are required to have that power available about 95
17 per cent of the time. And so if there is only a 5 per
18 cent chance of that power not being there when you need
19 it, and let's say that they might be comparing it to
20 another option that has a 10 per cent chance of that
21 power not being there when you needed it, it
22 theoretically would have the effect of reducing your
23 reserve margin, the Manitoba Purchase would tend to
24 have the effect of reducing the reserve margin by about
25 5 per cent of the 1,000 megawatts, which is 50

1 megawatts, and is a fraction of a per cent on the
2 reserve margin.

3 MR. STARKMAN: Q. Mr. Snelson, can we
4 look at page 98 of Exhibit 682. This is the page
5 that's entitled: Economic Evaluation of the Manitoba
6 Purchase Based on the Update Plans.

7 MR. SNELSON: A. Yes, I have it.

8 Q. And you see there there is a line
9 about the middle of the page called Interconnection
10 Benefit.

11 [12:45 p.m.]

12 A. Yes.

13 Q. Which has been valued, monetized, if
14 you like.

15 A. It is an estimate of a monetary
16 benefit to Ontario Hydro.

17 Q. Yes, and it is one of the benefits
18 that is counted in support of the plan or support of
19 the approvals for transmission from the Manitoba
20 Purchase.

21 A. Right.

22 Q. And I believe you testified that one
23 of the benefits to the Manitoba Purchase was that it
24 would provide greater interconnection benefits between
25 the east and the west system.

1 A. Greater benefits between the east and
2 the west system.

3 Q. Yes.

4 A. Yes.

5 Q. And also a better transmission line
6 from Manitoba, better interconnect with Manitoba.

7 A. Yes.

8 Q. Now, if you did get approval for this
9 transmission, why would you not, then, reduce the
10 amount of reserve margin because of the better
11 interconnect both internally in Ontario and external to
12 the province?

13 A. Well, reducing reserves is only one
14 of many benefits from interconnections. The
15 interconnection benefit that is calculated here is not
16 on the basis actually of reducing capacity
17 requirements. It is on the basis of savings in energy
18 costs.

19 Q. I understand that. But my question
20 really is, if you get the better interconnection, why
21 doesn't this have the effect of reducing the reserve
22 requirement from a no-approvals case, for example.

23 A. We would have to go through a
24 re-evaluation of our interconnection benefits in terms
25 of reducing capacity requirements. And we do find that

1 the interconnection benefits, in terms of reducing
2 capacity requirements and we have taken about 700
3 megawatts as being the amount that we rely upon from
4 interconnections, that is not, strictly speaking, a
5 direct function of the size of the interconnections
6 between the systems.

7 It is also a function of how the systems
8 are planned, what are the errors in loads and
9 capacities on both our system and our interconnecting
10 systems and the probabilities of them having power
11 available to supply to us when we need it. And there
12 is also the reverse situation which they would be
13 considering, the probabilities for us having power
14 available when they need it. So directionally, larger
15 interconnections may permit higher interconnection
16 benefits in terms of reductions in reserve. But it is
17 not a direct relationship.

18 Q. Well, Mr. Snelson, there are two
19 things here. On that point, we have already had the
20 discussion about that. As I understand it, you rely on
21 others for 700 megawatts of connection. They rely on
22 us for in excess of 2000. So the question is, if this
23 Board were to determine that it was appropriate for us
24 to rely on a greater interconnection, that one decision
25 would drive up the surplus, just on that point.

1 A. It would reduce the reserve
2 requirement.

3 Q. Yes. And the second point is, that I
4 started off to ask you about is, if you do get the
5 Manitoba Purchase, why doesn't that have the effect of
6 reducing the reserve margin requirement over what it
7 would be in the no-approvals case? It is a planning
8 question. I am not going back into how many megawatts
9 are available elsewhere and all those reasons. I just
10 don't understand from a planning point of view, a
11 no-approvals case, the way from I would think about it,
12 should have a higher reserve margin requirement than a
13 case giving you the transmission from the Manitoba
14 Purchase because then you have better interconnect than
15 you had before.

16 A. Well, I indicated what the effect is
17 of a higher reliability of the actual deliveries of the
18 Manitoba power compared to something else that one
19 might substitute for it. And that, directionally, is
20 in the direction of requiring less reserves, but it is
21 a very small production.

22 And as regards the additional benefits
23 that comes from the interconnection, and I go back to
24 the answer I have already given, and that is that the
25 evaluation of the interconnection benefits in terms of

1 reducing capacity requirements, reducing reserve
2 requirements, for liability reasons, is a complex
3 analysis of what the actual size of the transmission
4 path between our system and the neighbouring systems is
5 only one component of that calculation. It is not
6 necessarily the limiting component.

7 Q. I appreciate all that. I still don't
8 understand why the plans that you have put forward
9 don't reflect, in any way, this possibility.

10 A. I do believe that there is a
11 significant reserve saving of the Manitoba Purchase
12 transmission and that is principally a saving in the
13 reserves that have to be held in Northwestern Ontario
14 on a regional basis.

15 Q. Let me ask you another question about
16 the surplus, Mr. Snelson. If you assume you take the
17 supplemental energy from the Manitoba Purchase,
18 wouldn't that increase the surplus?

19 A. No. The surplus is measured in
20 capacity terms. We talked about so many megawatts of
21 surplus. The Manitoba Purchase with or without the
22 supplemental energy is 1,000 megawatts of power that is
23 available at the time of peak.

24 Q. The last area I wanted to deal with
25 was with respect to the this question of banking

1 people have been talking about. I don't want to go
2 over really so much the areas that have been gone over
3 before, but I just wanted to sort of summarize in my
4 mind and ask you questions about the relative merits
5 and demerits of this banking of approvals, if I can.

6 I guess, Mr. Snelson, you are the person
7 who has been addressing in this matter. I take it what
8 you said to people so far is that you don't want bank
9 approvals or at least approvals from major new supply
10 because at this time you don't feel that you are able
11 to demonstrate a need for those approvals.

12 A. That is one way of putting it, yes.

13 Q. The second reason I take it you have
14 been going through is that you said that you haven't
15 determined even if you thought new supply was needed,
16 what form that supply, major new supply would take,
17 i.e. you don't know whether it would be a fossil or
18 nuclear. And if it was a nuclear, whether it would be
19 4 by 881s or 600s or even some other reactors.

20 A. Yes, the view is that we don't need
21 to make such a decision at this time and that we
22 couldn't say with certainty what decision would be made
23 if we had to make a decision at this time.

24 Q. And isn't another reason that if you
25 determined that you need further supply in the future,

1 you haven't even determined whether or not you should
2 more aggressively pursue demand management and NUGs to
3 make up the difference as opposed to embarking upon a
4 major supply option?

5 A. I think that we have decided that we
6 will go for as much demand management as we can get.
7 Now, it is possible, of course, that we may, in doing
8 that, we may achieve more than we currently estimate.
9 We may achieve less.

10 I think, however, there are some
11 decisions still to be made with respect to non-utility
12 generation, particularly the major supply type of
13 non-utility generation, in that if they need major
14 supply and gas prices have stayed low and the market
15 for non-utility generation is still very good, then we
16 may go that route for part of our requirements.

17 Q. Can you turn to page 29 of Exhibit
18 452? This is the sample response portfolio page that
19 reference has already been made to.

20 A. Yes.

21 Q. What I take from this page is if you
22 look at a few places, for example, it says major new
23 supply, four boxes down from the top, you go across it
24 says response, planned for more demand management or
25 NUG purchase. And similarly, if you go to performance

1 of existing system, if there is a problem under the
2 risk category, Hydro indicates advance new supply
3 and/or increased demand management and NUG or purchase
4 as possible responses.

5 And under CTUs, you don't get them in
6 time, more demand management NUG or purchases. Now, I
7 take it that sticking with just the demand management,
8 whether Hydro says the sample response portfolio to
9 these things occurring is more demand management, this
10 is more demand management that is within Hydro's
11 avoided costs.

12 A. Well, I think that if you were in the
13 situation, let's look at the major new supply element
14 that you are talking about.

15 Q. Yes.

16 A. Neither nuclear nor IGCC is
17 acceptable, if that is the risk. Then in that
18 circumstance, Hydro's avoided cost would be higher.

19 Q. You would say the same for CTUs?

20 A. It's quite possible in the case of
21 CTUs, too, particularly if this is a short-term
22 situation.

23 Q. But the short answer, the answer is
24 yes, all of these more demand management options that
25 are being identified are within Hydro's avoided costs.

1 What you are saying is Hydro's avoided costs might
2 change as a result the occurrence of certain risk
3 factors.

4 A. If you cut out lower cost options
5 then what remains are higher cost options and avoided
6 cost is higher.

7 Q. Now, back again to the banking of
8 options. I take it another reason that you have talked
9 about, or intimated anyway, for not seek major supply
10 options at this time is you have not yet made any final
11 decisions on the question of life extension of certain
12 of the supply options.

13 A. We have, I believe, changed our view
14 of life extension to the point that we are prepared to
15 plan upon some of the fossil plant being life extended.

16 Q. Yes. But my question is, you haven't
17 yet made any plans as to how long that life extension
18 will be, as I understand it?

19 A. Those decisions will be made over the
20 course of time as things evolve.

21 Q. And you haven't yet made decisions
22 about life extension of certain of the fossil plants;
23 correct?

24 A. That is correct.

25 Q. And you haven't made any decisions

1 about the life of the nuclear facilities.

2 A. That is correct.

3 Q. And so a reason for delaying the
4 decision is that if there is a delay, you may have
5 greater and better information with respect to the
6 question of life extensions.

7 A. It is one of many factors that are
8 uncertain the further you go out into the future.

9 Q. You would agree with me also that the
10 technologies are changing and that five years from now
11 or 10 years from now there may be different
12 technologies which could be looked at, should there be
13 a need for further supply.

14 A. Technologies change. They tend to
15 change at a relatively slow pace in terms of what is
16 commercial. Over a 10 or 20 year period certainly new
17 technologies emerge and become significant.

18 Q. I'm thinking here about solar or fuel
19 cells or maybe even passive nuclear technologies.
20 Their may be some developments in those areas.

21 A. There may be.

22 Q. Another reason that you didn't
23 identify but which was talked about, was that if you
24 put the decision off, you may have a decision -- if you
25 put the decision with respect to major supply off,

1 there may be more information or even a final decision
2 on the nuclear waste disposal question.

3 A. That is one area where there may be
4 better information and better definition, yes.

5 Q. I thought that the evidence was that
6 there was some hope that there would be a facility in
7 place by 2025, but a decision made with respect to that
8 question in around the turn of the century or the early
9 part of the next century.

10 A. I believe the Panel 9 witnesses would
11 have spoken to that and would be more familiar with the
12 details of the scheduling for that than I am.

13 Q. Would another reason for putting it
14 off be that some of the uncertainty about environmental
15 regulations might be resolved? And I am thinking here
16 about the evidence on the SO(2) illustrative targets
17 and that type of situation.

18 [12:57 p.m.]

19 A. That might be a reason for putting
20 off decisions, it might be a reason for advancing them.

21 Q. How could it be a reason for
22 advancing them?

23 A. Well, let's say that the
24 uncertainties of environmental regulations were
25 resolved in the direction of very stringent controls

1 on, let's say just for the sake of example, carbon
2 dioxide, then having approvals for some plant that
3 could produce electricity without releasing carbon
4 dioxide such as hydraulic, nuclear or solar, could be
5 helpful in meeting such a regulation.

6 Q. Now, there were some other reasons I
7 thought of for not banking and I wanted to ask you
8 about this.

9 I take it that banking, like banking a
10 nuclear approval, with the concept of banking goes the
11 concept of spending money, in my head, to develop and
12 keep current or keep alive the option. Would you agree
13 with that, Mr. Snelson? It's not just a question of
14 taking an approval in some form and putting it on a
15 shelf, there has to be some attention paid to it?

16 A. I think that the approval and the
17 continuation of the technology are somewhat different
18 and separable aspects.

19 MR. STARKMAN: Mr. Chairman, this might
20 be a good time to take the lunch break. And I will
21 come back and talk a bit more about the continuation of
22 technologies and approvals. Thank you.

23 THE CHAIRMAN: Thank you. We will
24 adjourn until 2:30.

25 THE REGISTRAR: Please come to order.

1 This hearing will adjourn until 2:30.

2 ---Luncheon Recess at 1:00 p.m.

3 ---On resuming at 2:30 a.m.

4 THE REGISTRAR: Please come order. This
5 hearing is again in session. Be seated, please.

6 THE CHAIRMAN: Mr. Starkman?

7 MR. STARKMAN: Thank you, Mr. Chairman.
8 I only have a few more questions.

9 Q. Mr. Snelson, prior to lunch we were
10 talking banking and the merits or demerits of banking,
11 and I was suggesting that the banking of an approval
12 for a major supply facility really goes hand in hand
13 with the spending of money with respect to that
14 approval. It's not just a question of having an
15 approval and putting it on the shelf, and you didn't
16 entirely agree with that proposition.

17 MR. SNELSON: A. Well, you kind of
18 introduced another idea of preserving the technology
19 and I thought those two were separable.

20 Q. Would you agree with me that banking
21 say, for example a nuclear approval, assuming you had
22 one, to bank it would require Hydro spending money to
23 really have it banked, if you like, in the sense that
24 people have been referring to.

25 A. Likely, yes, but I am not sure how

1 much.

2 Q. Okay. That brings us, I did make a
3 note here because someone asked you about the 240
4 million and I believe you said that number was a number
5 that you sort of recalled, talking about the
6 pre-engineering, the 240 pre-engineering, but you
7 weren't sure how long a period of time it was to be
8 spent over.

9 A. Can you refresh my memory as to which
10 particular 240 million?

11 Q. I am talking about when the
12 moratorium was put on nuclear and there was mention
13 that this resulted in the stopping of pre-engineering
14 site selection studies of a value of approximately \$240
15 million. Is that something that --

16 DR. LONG: A. I think answered some
17 questions on that, I think the period is '91 through
18 '93, if my memory serves me right.

19 Q. So Hydro had been proposing to spend
20 240 million over a three year or so period on
21 pre-engineering?

22 A. That's correct.

23 Q. And people keep talking about
24 pre-engineering, and can you just help me out with what
25 that includes? What does it mean to spend money

1 pre-engineering? Or maybe I have got the wrong word.
2 What type of thing are we talking about?

3 MR. SNELSON: A. We are talking about
4 early stages in the design of the plant.

5 Q. Okay. And in order to do that, you
6 have to have a commitment to the precise technology
7 that you are going to use?

8 A. Early in the pre-engineering you may
9 be deciding upon the details of the technology to
10 pursue. But as you proceed then those idea would
11 become more and more fixed, yes.

12 Q. And do you also need to have made
13 some decision as to siting of this facility?

14 A. For some aspects, yes. But not for
15 all aspects.

16 Q. So when you say or when you agreed
17 with me that to bank an approval would require spending
18 some money, I take it you are talking about spending
19 some money on the things that you have just identified?

20 A. Well, to obtain the approval, you
21 would have to do whatever work was necessary to obtain
22 at approval. And having done that, then the next
23 question is, when do you have to start further work on
24 that project, and it depends on when you see the
25 in-service date that is needed for it.

1 So your spending on pre-engineering,
2 having obtained the approval in principle for some type
3 of facility, your spending on pre-engineering would be
4 determined primarily by the expected in-service date of
5 the facility, and backing up from that, the amount of
6 time that you need to do the pre-engineering to get the
7 site-specific approval and to build the plant.

8 Q. Mr. Snelson, what I am trying to
9 focus on is, there was a suggestion by the MEA or AECL,
10 AMPCO and others, that you should bank an approval,
11 even if you felt you didn't need approval now, there
12 was merit in banking it. Do you recall all that
13 discussion?

14 A. I do recall that discussion.

15 Q. In great detail.

16 What I am trying to drive at is, well,
17 what you are saying is, well, you can't get an
18 approval -- they want an approval to bank out of this
19 hearing. What I am saying is, if you have got such an
20 approval, wouldn't you have to spend some money in the
21 immediate term to put some definition on the approval,
22 otherwise it would just be a piece of paper on the
23 shelf?

24 A. And having obtained the approval, and
25 presuming that it was obtained and that was a document,

1 then you are further spending would be largely
2 determined by when you needed to have the facility
3 in-service and backing up from it as I described.

4 Q. And that comes around to the question
5 of the shelf life, you said approvals have shelf life?

6 A. We discussed that, yes.

7 Q. And you also said you didn't know
8 what the shelf life is. My question is, why does an
9 approval have a shelf life?

10 A. Because, and I think I have been
11 through this already, there are circumstances that
12 change, they change gradually over time or they may
13 change more rapidly over time, and by the time one
14 seeks to exercise an approval and take some action
15 based upon it, if there has been substantial change in
16 circumstances since the approval was obtained, then
17 there will be concerns raised and there is an
18 increasing chance that the approval that one thought
19 one had obtained will be questioned and the issues that
20 were approved will end up being re-examined.

21 Q. Yes, I know, you said that. What I
22 am trying to do is get behind those words. What
23 circumstances do you envisage changing which could a
24 cause an approval to go stale?

25 A. There are quite a variety of

1 circumstance that might change.

2 Q. Like what are you thinking about when
3 you say that?

4 A. Let's say, for example, that one has
5 an approval for a conventional coal-fired plant--

6 Q. Yes?

7 A. --then in five or 10 years' time it's
8 quite possible that the IGCC technology which is
9 currently sort of neck and neck with the conventional
10 coal-fired plant, with some advantages and
11 disadvantages, may be seen as a clear winner, by
12 Ontario Hydro and others. And an approval for a
13 conventional plant at that time might not be the
14 appropriate technology to pursue.

15 Q. And similarly even with a nuclear
16 plant, public opinion may turn dramatically against
17 nuclear changing the view of Hydro as to whether that's
18 the preferable way to go?

19 A. That is possible. It's also possible
20 that if a coal-fired plant had been approved, then
21 there may be circumstances such as carbon dioxide or
22 others that would shift in the other direction. It can
23 go both directions.

24 Q. You would agree with me that the
25 pre-approval of an option at this time, particularly

1 one that may not be implemented for a number of years,
2 has the effect of locking Hydro in to a certain
3 position. Talking about corporate behaviour really,
4 with something approved there is a tendency to want to
5 go with it because it's the path of least resistance.

6 A. I don't think it's an absolute.

7 Q. Yes, I agree with that.

8 Q. If option A has been proved and
9 option B looks better, then one could say, well, we
10 will not exercise the approval for option A, we will
11 seek a new approval for option B. But I think in the
12 real world where there is inertia and so on, then there
13 is some slight tendency to go with the option which you
14 already have approved.

15 Q. Yes, I agree. And in that sense it
16 tends to maybe inhibit or cloud pursuing other options,
17 because there is no need to do it if you have an
18 approval already in hand?

19 A. I think there is an inertia. I
20 wouldn't want to overestimate it, because if there
21 clearly was a case for a different option, then I
22 believe that's the decision that would be pursued.

23 Q. Now, the other point that I would
24 like your comments on, is that even if it should turn
25 out that you do need a major supply option earlier than

1 indications are at the present time, this would only
2 affect a window of a certain number of years in the
3 beginning part of the next century; am I correct in
4 that?

5 A. I am not sure I fully understand the
6 question, because you are talking about requiring major
7 supply a little earlier than currently required, which
8 we think is towards the end of the first decade of the
9 next century.

10 Q. Yes.

11 A. I am not quite sure what the
12 relevance is of a few years soon after --

13 Q. What I am getting at, if load is
14 greatly in excess of anything you are predicting and
15 DSM and other programs don't work, it's conceivable on
16 your analysis that you would need a major supply in the
17 first years of the next century, 2002, 2003, 2004?

18 A. We have discussed that possibility,
19 yes.

20 Q. And you have made contingency plans
21 to deal with that possibility?

22 A. Yes.

23 Q. Which you feel are adequate. So that
24 the not banking only effects that period between 2003,
25 and 2008 or 9 when you indicate in your plans that you

1 would be in a position to proceed with a major supply
2 option?

3 A. Well, clearly it effects that time
4 period. There could be some effects that continue
5 beyond that.

6 Q. Now, the other area I would like your
7 comment on, is dealing with banking. I guess from our
8 point of view we see in the planning process, you do
9 have to do some banking and from our point of view
10 Hydro is already banking, or in the course of this
11 hearing, endeavouring to bank several approvals. Would
12 you agree with that?

13 A. No.

14 Q. Let me put it this way. You have
15 asked for approval of the transmission for the Manitoba
16 Purchase.

17 A. Yes.

18 Q. All right. And one of the
19 consequences of getting that approved is that you have
20 put a certain degree of NUGs or certain amount of NUGs
21 on hold into the next century. They are achievable
22 now, they are within you are avoided cost, but you
23 don't need them so you have put them on hold?

24 A. I wouldn't want to specifically
25 associate it with the Manitoba Purchase, but you are

1 correct that we probably, as part of our surplus
2 management, will not go for the full amount of
3 non-utility generation that might be offered to us.

4 Q. Okay. And the way I look at it is,
5 what you are doing there is you have opted for the
6 Manitoba Purchase for the reasons, some of the reasons
7 you have described. The economics you say are about
8 even, but it has flexibility and it's a window of
9 opportunity and so on. You have opted for that, and
10 the consequence is you have banked the NUGs, you have
11 banked them because you haven't gone to get them now,
12 you have banked them into the next century knowing they
13 are there and you can call on them if you need them.

14 A. I wouldn't describe that as banking.

15 Q. What about with respect to the
16 banking of hydraulic. You have asked for approvals for
17 various quantities of hydraulic generation, some of
18 which you don't need now. Isn't this banking hydraulic
19 approvals?

20 A. We are seeking approval for 14 to
21 1,800 megawatts of hydraulic capacity, and depending on
22 the circumstances that may be developed over a
23 different schedule.

24 Q. Yes. But the point I am making is
25 that you are asking for that in 1992, 14 to 1,800

1 megawatts, you didn't need them now.

2 A. There is some possibility that we
3 will not proceed with those approvals as soon as we
4 have them.

5 We do intend to build by far and away the
6 largest part of that plan.

7 Q. But to the extent that you don't need
8 them now, you are banking them.

9 A. I see it as a little different and
10 the difference that I see is that the schedule with
11 which we propose to move forward on them has some
12 uncertainty with it and it may not be immediately
13 moving forward.

14 As regards to the suggestions for banked
15 approvals for major supply, then I think that we have a
16 much lesser certainty that we would actually go ahead
17 with the approvals at some time in the future.

18 [2:48 p.m.].

19 Q. Yes, you are banking them, but you
20 have made a choice here. Hydro has made a choice when
21 they looked at this matter. Now I'm talking about the
22 planning process. You have made a choice. You said we
23 need 1,400 to 1,800 megawatts of hydraulic approval and
24 we need the transmission from Manitoba. So if you
25 like, that is 2,400 to 2,800 megawatts which you said

1 you needed.

2 A. Yes.

3 Q. Now, it is conceivable just looking
4 at the thing you could have said, we don't want that,
5 we, we are going to go for that major supply option.

6 A. That would have been a possible
7 choice in the matter, and we have chosen not to do
8 that.

9 Q. That's right. And you chose to go
10 for certain types of demand management, certain
11 quantities. You could conceivably have made some
12 slightly different choices.

13 A. Yes.

14 Q. And you did make some slightly
15 different choices back in '88 which you changed in the
16 Update or modified in the Update.

17 A. We have certainly modified our
18 choices in the Update, yes.

19 Q. The same with NUGs. You have made
20 certain choices about preferred routes that have
21 resulted in this plan you have put forward.

22 A. Yes.

23 Q. And in that context you are banking
24 hydraulic, and I know you don't like my
25 characterization, but banking NUGs in favour of

1 approvals for the Manitoba Purchase.

2 A. Well, as I have indicated I don't
3 believe we are banking NUG approvals. I think there is
4 some uncertainty in the scheduling of the development
5 of the hydraulic.

6 Q. And you have already told me, I
7 guess, you don't agree that your banking DSM because
8 you are going after all of the achievable DSM.

9 A. Substantially, yes.

10 Q. You say that even though there was
11 5,200 megawatts projected from Panel 4, there was a 400
12 megawatt reduction but you didn't change your target.

13 A. That's correct.

14 Q. So between Panel 4 and now, you found
15 another 400 megawatts?

16 A. No, I think we have lost 400
17 megawatts.

18 Q. Well, you lost it but didn't you
19 change your target. So you found another 400 megawatts
20 in some other part of the DSM portfolio.

21 A. No, I don't think we have found it
22 yet.

23 Q. Well, maybe you didn't find it yet
24 but you didn't change your target.

25 A. That is correct.

1 Q. So basically, if I understand it,
2 Panel 4 says we are doing it all within avoided cost,
3 this is all we can do, this is all there is. Then 400
4 of what they thought was within their target goes away
5 but you found it or are going to find it in the future.

6 A. We have maintained our target but our
7 projections that we have shown are on the basis of the
8 4,800. All the load and capacity tables, all the
9 energy production simulations are on the basis of the
10 4,800.

11 Q. Yes, but you maintain your target of
12 5,200, which means you have managed to find another 400
13 in the avoided cost so you didn't have to lower the
14 target?

15 A. No, we haven't found it.

16 Q. You think it is there.

17 A. We don't know.

18 Q. I won't keep going over it. But it
19 seems to me with the ability to make that type of
20 switch, which is to lose the 400 but not reduce the
21 target strikes me that you are banking that there is
22 some DSM which is there, which you believe is there,
23 which you believe is achievable but you are just
24 banking on finding it.

25 Mr. Snelson, the last area I want to talk

1 about was this ongoing review process, I don't want to
2 get into a legal argument and I know you have talked
3 about this. I think in Exhibit 452 you basically say
4 that planning around the median tends to be associated
5 with reliance on relatively frequent decisions, i.e.,
6 every three years on relatively small supply
7 adjustments in terms of megawatts.

8 A. That is the statement at the bottom
9 of page 20, top of page 21 of Exhibit 452.

10 Q. And then you say:

11 Therefore, if planning around the
12 median is adopted it is important that
13 public review and approval processes be
14 in place that are compatible with this
15 requirement for more frequent decisions.

16 A. Yes.

17 Q. All right. Now, as I understand it,
18 there has been no evidence or testimony put forward as
19 to precisely what form that review process might take,
20 other than the statement that we have referred to.

21 A. That's correct.

22 Q. Now, from a planning point of view,
23 you say it is important, planning around the median,
24 that you have more frequent decisions. Can you just
25 explain to me why you feel that is so?

1 A. I think that one of the
2 considerations that was to the fore in people's minds
3 when the Update Plan was being considered was that
4 circumstances were changing and perhaps changing more
5 rapidly than had been normal experience. And people
6 recognized there was some benefit in relying upon
7 shorter lead time options and there wasn't such a great
8 penalty in relying upon shorter lead time options.
9 And, hence, you did not need the approvals for the long
10 lead time option.

11 But to be able to exercise shorter lead
12 time options, then if that isn't, if that is
13 constrained by infrequent, very long, very drawn out
14 approval processes, then the advantages of relying upon
15 shorter leads time options can be lost.

16 Q. I take it that if Hydro could have a
17 process of review which took place more frequently and
18 gave them a timely answer, then from a planning point
19 of view you wouldn't feel the need to have as much
20 flexibility as you have been emphasizing throughout the
21 course of this hearing.

22 A. You would still need to have quite a
23 lot of flexibility.

24 Q. But you could come for a review and
25 decision on a more frequent basis?

1 A. Yes. I think the planning decisions
2 really are taken on a relatively frequent basis,
3 reviewing previous plans, reviewing changes and
4 conditions since the last version of the plans,
5 updating and adjusting, moving on to a major
6 milestone-type of decision if one is justified at that
7 time.

8 And these things are not really
9 conveniently broken up into something that you do now
10 and then you keep everything fixed for five or 10 years
11 and then you do it again. These sort of decisions
12 really are revisited from time to time and on, say, an
13 annual or bi-annual basis, depending on what sort of
14 decision it is that you are looking at. And so
15 something that can match the reality of the planning
16 more closely I think could bring the planning approvals
17 and acceptability of plans closer into step.

18 Q. So that type of process you feel
19 would be useful to Hydro in its planning process.

20 A. I think we have indicated that more
21 frequent processes that look at changes on a more
22 incremental basis, provided they are timely and
23 efficient, would be beneficial.

24 MR. STARKMAN: Thank you. Those are my
25 questions.

1 THE CHAIRMAN: Thank you, Mr. Starkman.

2 DR. CONNELL: Dr. Long, I would like to
3 ask you a question about rates not arising particularly
4 out of Mr. Starkman's questions but just to illuminate
5 my understanding of some of the issues that have come
6 up. Perhaps I could refer to page 77 of Exhibit 682,
7 which is, in fact, figure C-6 from Exhibit 452.

8 If I were myself going to attempt to make
9 a forecast of prices, heaven forbid, the main variables
10 of which I would have to take account are the cost of
11 fuel, cost of OM&A, and the capital costs which would
12 include costs of construction of the facilities and
13 cost of equipping them and, of course, the cost of
14 money. Those are the main variables?

15 DR. LONG: Simply, yes.

16 DR. CONNELL: There are obviously
17 subsidiaries.

18 DR. LONG: I guess all the cash flows
19 that Hydro's undertakes combine with Hydro's financial
20 policies, accounting policies which determine exactly
21 how costs are charged through the customers are
22 essential to doing that. But if you were to look at
23 the revenue requirement which is the basis for
24 determining rates, that has got certain major
25 components and I think you have captured most of them.

1 There is certainly fuel, that is the cost
2 of generating the electricity that is used. The
3 operating costs, the costs of the in-service operation
4 and maintenance. Then there are the depreciation
5 charges on capital, and the associated interest
6 charges. There is also a net income component, which
7 has typically been something on the order of about 7
8 per cent of the revenue requirement. And offsetting
9 that to varying degrees over time has been revenue from
10 secondary sales, mainly sales to the U.S. So those are
11 the major components.

12 DR. CONNELL: Now, let me take it out of
13 the context of Hydro, and imagine a hypothetical public
14 utility in which, let's set aside the traditional
15 pattern of calculating the revenue requirement, if in
16 this hypothetical utility were to postulate that there
17 was constant demand that your policies led you to a
18 constant balance of supply option, so that didn't
19 change. And if we assume that all the costs that we
20 have talked about track inflation and that interest
21 rates are constant over an extended period, I presume
22 it would be possible to set rates that would hold
23 constant over the entire period. I am thinking
24 particularly here of capital. It would be possible in
25 a perfectly managed utility to have facilities phased

1 out when they were fully depreciated and having new
2 facilities exactly consistent with them coming on line.
3 I am assuming, too, that there are no changes in
4 technology or regulation. All those matters are
5 constant. You could draw a flat line for the rates?

6 DR. LONG: I think if you just went
7 through the normal process of accounting the way we do,
8 because the replacement supply, if you will, comes in
9 rather large chunks and each chunk has a depreciation
10 and interest associated with it which is based on its
11 historical cost. Then if that piece of equipment lasts
12 40 years, when you come to replace it through the
13 process of escalation and inflation, the value of the
14 piece that you are adding is going to be increased.
15 That combined with the fact that we use straight line
16 depreciation and the total capital charges associated
17 with the facility declined with time would result, I
18 would think, in some seesaw effect on what is basically
19 a flat profile. But I think it would suffer some ups
20 and downs because of that. But by and large, I think
21 if you had a zero load growth, everything tracking the
22 same rate of inflation, constant real interest rates,
23 and perfect foresight, than you would probably be able
24 to come up with a forecast that was pretty flat.

25 [3:00 p.m.]

1 DR. CONNELL: And do you think that would
2 hold true as well even if you had growth, let us say,
3 20 per cent growth over a five-year period in the
4 middle this extended period, that following the same
5 practices you could meet that increased demand by
6 increasing the supply and still maintain that
7 essentially flat --

8 DR. LONG: I think if you have got growth
9 you would be faced with a situation where you are going
10 to have to constantly be making capital additions, and
11 that the average net book value of those additions is
12 going to grow. So, I would expect that if you had a
13 growing system, that you would probably see some
14 gradual increase in rate picture.

15 DR. CONNELL: But you have got 20 per
16 cent more customers to charge off the 20 per cent more
17 capital to?

18 DR. LONG: The cost of the new additions,
19 or the marginal cost of supply would constantly be a
20 little ahead, I think, of the average cost.

21 I think would have to, I am not sure I
22 can do it in my head here, but I think that would tend
23 to produce a profile that would maybe not be perfectly
24 flat in real terms.

25 DR. CONNELL: And a moment ago you were

1 postulating perhaps a zigzag pattern because I think
2 you were having recourse to Hydro's rate-setting
3 policies and historical aspects of your supply
4 facilities, and one of my postulates was that you had
5 set those aside, but since you did introduce them that
6 was really what I was getting at.

7 And looking now at the figure, page 77,
8 and looking at the upturn at the end, I wonder if you
9 can hazard a guess as to whether that upturn is related
10 particularly to the way that Hydro establishes its
11 rates or whether in fact there is underlying it a
12 forecast that some of the specific elements that we
13 cited, particularly related to capital costs, are going
14 to be accelerating faster than inflation at that time.

15 DR. LONG: I think there is probably two
16 points I would make there.

17 One, yes, it's certainly influenced by
18 our method of accounting, but also because we are
19 adding new supply, the cost of that new supply compared
20 to the average cost of the supply that's already on the
21 system is somewhat higher, so that will generally
22 result in some sort of jump, be it gradual or steep.

23 I think getting back to the situation
24 that you postulated, eventually that would die down, if
25 that's all that you were doing was just replacing

1 facilities.

2 DR. CONNELL: If Hydro were permitted to
3 base its rates on long-term marginal costs and did so,
4 then would it follow that that hump might flatten out
5 to a considerable extent? I presume you would have
6 revenue in intermediate years in excess of your revenue
7 requirement, at least in some of them, but might that
8 then offset the increase in rates that appears at the
9 end of this period?

10 DR. LONG: Certainly, I think the rate in
11 any year compared to our current rate forecast, would
12 then depend on the difference between average and
13 marginal costs. And if you were constantly basing
14 rates on long-term marginal costs, then I think you
15 would end up with a smoother rate picture.

16 DR. CONNELL: Thank you.

17 THE CHAIRMAN: Do you have any questions?

18 MR. STARKMAN: No, Mr. Chairman.

19 THE CHAIRMAN: Ms. Marlatt is next.

20 MS. MARLATT: Good afternoon. I would
21 like to start by inducing myself to those members of
22 the panel I haven't met yet.

23 My name is Constance Marlatt and I am
24 here representing the North Shore Tribal Council, the
25 United Chiefs and Councils of Manitoulin, and the Union

1 of Ontario Indians.

2 I would like to start by asking if we
3 could enter as an exhibit the materials for
4 cross-examination that we have prepared.

5 THE CHAIRMAN: Yes.

6 THE REGISTRAR: That would be No. 710.

7 ---EXHIBIT NO. 710: Cross-Examination Materials
8 from the North Shore Tribal Council, the
9 United Chiefs and Councils of Manitoulin,
and the Union of Ontario Indians.

10 MS. MARLATT: The other material that we
11 may be referring to in cross-examination is Exhibit
12 535, which is the final report, public government
13 review and input.

14 CROSS-EXAMINATION BY MS. MARLATT:

15 Q. I am glad Dr. Connell had some
16 questions for someone other than Mr. Snelson, because
17 unfortunately most of my questions will begin with you.

18 Mr. Snelson, I would like you to look at
19 page 1 of the Exhibit 710, and that's the development
20 of the 1992 Update which has previously been entered as
21 Exhibit 692. I would like to start with a general
22 planning question.

23 Mr. Snelson, would you agree with me that
24 a planning process should be determined prior to final
25 decision-making?

1 MR. SNELSON: A. Generally, yes.

2 Q. In fact, would you agree with me that
3 the planning process should act as a framework for the
4 decision-making of an organization?

5 A. The planning process is the process
6 which enables you to make the decisions in an orderly
7 way.

8 Q. Looking at page 3 of the development
9 of the 1992 Update, I have some questions on the dates
10 under the formulation and documentation of update
11 plans.

12 As we can see from that document, January
13 17th, 1992 was the time that the DSP was filed, Update
14 DSP was filed at this hearing. Could you explain to
15 me, Mr. Snelson, how, with that date in mind, the
16 decisions that are referred to under December 1991 to
17 February 1992 continue to be made after the Update was
18 filed?

19 A. Sorry, what decisions are you
20 referring to?

21 Q. Looking at December 1991 to February
22 1992, we are told that in that time period the plans
23 presented to the Board remained unchanged but models
24 were rerun to improve consistency between H and E
25 cases, especially in area of acid gas and carbon

1 dioxide emissions. Revised inter-area transmission
2 costs were also included. Determinations of system
3 incremental costs and re-evaluation of the Manitoba
4 Purchase were begun. All NUG proposals over five
5 megawatts which had not yet received Hydro's executive
6 approval were placed under review.

7 So it appears to me from that description
8 that in that time period new information was coming in
9 to you.

10 A. Most of what is referred to there is
11 more in the nature of fine-tuning and crossing the T's
12 and dotting the I's in the previous analysis.

13 Q. Can you explain to me then under the
14 February 1991 -- I assume that is supposed to read
15 February 1992, supporting documentation for the Update
16 Plan was filed at the DSP hearing as Exhibits 452A and
17 B.

18 A. Yes.

19 Q. Were those documents drafted after
20 January 17th, 1992?

21 A. Well, let's look at what 452A is and
22 what 452B is.

23 MR. DALZIEL: A. 452A is presenting
24 information simply representing the numerical
25 information behind the figures that were in Exhibit

1 452. The exhibit which was filed January 17th. And
2 then 452B is consolidating information that is
3 consistent with the plans which were approved by the
4 board of directors and presenting that information in a
5 format that was following the format that had already
6 been laid out in Exhibit 3.

7 Q. Whoever actually documented that
8 information though, the document was produced after
9 January 17th, 1992; is that correct?

10 A. That's correct. Reflecting all of
11 the information that was consistent with the plans
12 which were approved.

13 Q. Okay. Mr. Snelson, if you look at
14 page 49 of our materials, you will see a document
15 entitled: Statement of Political Relationship, have
16 you seen this document before?

17 MR. SNELSON: A. I am aware of it but I
18 am not familiar with its detail.

19 Q. Could you tell me, Mr. Snelson, if
20 you have seen this document before, is there any reason
21 that you know of why the signing of this document dated
22 August 1991 was not included as changes to the planning
23 environment under the development of the 1992 Update?

24 Did you consider whether or not it might
25 be a change to the planning environment?

1 MR. SHALABY: A. I think under September
2 24th, 1991, page 1 of your material.

3 Q. Yes?

4 A. Under changes to planning environment
5 there is recognition that planning was suspended for
6 1,500 megawatts of hydraulic potential. And in there
7 it says until a co-planning process could be developed
8 with the affected Aboriginal groups, that has linkage
9 to some other things affecting the planning environment
10 in that area.

11 Q. All right.

12 A. So while that particular charter
13 isn't mentioned but the impact of it on Hydro
14 activities is mentioned.

15 Q. That's quite a specific event there.

16 What I was wondering is if, on a more
17 general planning level, Mr. Snelson, you considered the
18 Statement of Political Relations when you saw it as a
19 change to the planning environment. It appears, and if
20 I am characterizing this correctly, Mr. Shalaby, that
21 what you are saying is that the notation under
22 September 24th, 1991 shows that in effect you did
23 consider it as a change to the planning environment.
24 Would that be correct?

25 MR. SNELSON: A. I think Mr. Shalaby has

1 correctly indicated, and I was going to come to that
2 point, is that that event with respect to hydraulic was
3 a consequence of some re-evaluation of the way in which
4 we were going to work with communities in that area.

5 I would point out that the changes to the
6 planning environment are listed in this document are
7 very specific things that relate to energy matters, and
8 there are of course many more general things that are
9 happening outside with respect to planning that are not
10 listed. This is not a comprehensive list of everything
11 in the planning environment. This is some very
12 specific things that would impact upon our plans.

13 Q. These are occurrences that will
14 affect or perhaps alter the way in which Ontario Hydro
15 does its planning; correct?

16 A. Yes. But it's not necessary all of
17 those matters.

18 Q. But it would be the significant
19 things?

20 A. It is those, it is very specifically
21 ones that are to do with energy matters in general and
22 particularly with electrical energy matters.

23 Q. But you have listed the suspension of
24 the 150 megawatts of hydraulic potential and the
25 co-planning as activities that were significant

1 obviously in your mind to the energy issues that
2 Ontario Hydro faces; correct?

3 A. 1,500 megawatts of capacity which is
4 described there.

5 Q. All right. Can we take a look then
6 at the Statement of Political Relationship again. I
7 would just like to read out to you the first two
8 whereas:

9 Whereas the First Nations represented
10 by the Chiefs in assembly, hereinafter
11 the First Nations, exists in Ontario as
12 distinct nations with our governments,
13 cultures, languages, traditions, customs
14 and territories, and whereas the
15 Government of Ontario, hereinafter
16 Ontario, recognizes that its
17 relationships with the First Nations are
18 to be based on the Aboriginal rights,
19 including Aboriginal title and treaty
20 rights of the First Nations, recognized
21 and affirmed in the Constitution Act
22 1992, including those formally recognized
23 in the Royal Proclamation of 1763 and in
24 the treaties in agreement with the Crown.
25 Now, Mr. Snelson, when you came across

1 that, did you consider that the impact of that
2 Statement of political relations is that Ontario Hydro
3 must consider impacts on Aboriginal title, treaty
4 rights and Aboriginal rights?

5 Dr. Tennyson, certainly you can answer.

6 DR. TENNYSON: A. I think as I indicated
7 on Panel 7, we have been, in our planning, cognizant of
8 the Statement of the Changing Relationships and we have
9 tried to address that.

10 With respect to rights, we acknowledge
11 those rates and we believe it's up to the First Nations
12 in our consultation with them to determine and tell us
13 our effects upon those rights. And that is part of our
14 ongoing consultation with them.

15 Q. All right. Mr. Snelson, I would like
16 to ask you to look at the proposed wording for the Rio
17 Declaration on the Environment and Development, that's
18 page 5 of our materials. This is just to give a little
19 international flavour to the questions.

20 I was wondering, Mr. Snelson, have you
21 looked over these principles previously?

22 MR. SNELSON: A. No.

23 Q. All right. I would just like to turn
24 your attention to two principles. Principle 8 which
25 states:

1 That to achieve sustainable development
2 and a higher quality of life for all
3 people. States should reduce and
4 eliminate unsustainable patterns of
5 production and consumption and promote
6 appropriate demographic policies.
7 Is that a principle that you consider in
8 planning principles?

9 MS. HOWES: A. I think I addressed the
10 issue of sustainable development when I provided the
11 direct evidence that I gave. I suggested that there
12 were certain elements of our plans that, yes, indeed, I
13 think are consistent with sustainable development.

14 Q. Dr. Tennyson, the next principle may
15 be best directed at you then. Principle 22:

16 Indigenous people in there
17 communities, and other local communities,
18 have a vital role in environmental
19 management and development because of
20 their knowledge and traditional
21 practices. States should recognize and
22 duly support their identity, culture and
23 interests and enable their effective
24 participation in the achievement of
25 sustainable development.

1 Q. Dr. Tennyson, would you agree with
2 that as a principle?

3 DR. TENNYSON: A. Yes, I do.

4 Q. Mr. Snelson, when you are developing
5 both plan and project level EA's, is it your intention,
6 as a planner, to encompass all of the matters and
7 planning requirements that you would have applied had
8 you just had a single EA that dealt with both plan and
9 project level considerations?

10 MR. SNELSON: A. Are you essentially
11 asking whether there are some things that may be
12 missed?

13 Q. That's correct. Or some things may
14 be duplicated?

15 A. I think our intention is certainly
16 that nothing be missed.

17 Q. All right. Mr. Snelson, would you
18 agree with me that a plan level environmental
19 assessment should be setting parameters within which a
20 plan approval would remain valid as a basis for project
21 related EAs. So that within your planning level
22 assessment, with this type of hearing, you would set
23 out a framework by which the project EAs would occur?

24 A. I'm not sure that that is
25 appropriate.

1 Q. Can you please explain to me why?

2 A. The project EA is, in my
3 understanding, a separate procedure and that whoever
4 was conducting that procedure would want to be able to
5 conduct it in the best way they felt possible.

6 Q. Would you agree that a plan level
7 environmental assessment should evaluate the
8 environmental implications of all alternatives at a
9 level of detail that enables them to be compared on an
10 equal basis?

11 A. Sorry could you repeat that question?

12 [3:24 p.m.]

13 Q. Would you agree that a plan level
14 environmental assessment such as the DSP should
15 evaluate the environmental implications of all
16 alternatives at a level of detail that enables them to
17 be compared on an equal basis, compare the options on
18 an equivalent level of detail. To the extent possible,
19 would you agree with that as planning principle?

20 A. I think that all options have to be
21 looked at in a sufficient level of detail to make the
22 determinations of need and rationale that are being
23 asked for at the planning stage.

24 Q. So by using the word sufficient, are
25 you telling me that you disagree that they should be

1 compared on an equivalent level of detail?

2 A. I believe the information will be
3 available to differing degrees of detail. The
4 important consideration is that they be sufficient
5 information to make the planning decisions that have
6 been made.

7 Q. So for different options you may have
8 different levels of detail, then.

9 A. I believe so.

10 Q. All right. With regards to your
11 planning process, you have testified that you have used
12 both qualitative and quantitative information where
13 available. Would you agree with me that a sound
14 planning methodology is presently replicable.

15 A. Not necessarily.

16 Q. Would you please explain to me why
17 you don't think it needs to be done again by a
18 different group of people with the similar or same
19 results.

20 A. I think that the reality is that
21 different people addressing the same questions may come
22 to a different decision.

23 Q. All right, Mr. Snelson, then you may
24 have already answered my next question, which is
25 actually a hypothetical but I will try you on it

1 anyway.

2 Would you agree that if a planning team
3 proposed of different members with equal qualifications
4 to your planning team, considered the same level, and
5 type of information that has been available to you,
6 that such a team would come up with the same results
7 that you have? I take it your answer would be no.

8 A. I think that there are elements that
9 are somewhat subjective and while it is desirable that
10 things should be objective and entirely replicatable,
11 then I think the reality is that there is some subject
12 to elements.

13 Q. Mr. Snelson, if a plan is not fully
14 capable of being replicated, how do you perceive the
15 attempt of people from the outside to trace the
16 decisions that you have made?

17 A. Well, I think, and we have done our
18 best to explain the areas where judgments have been
19 made and the reasons for making those judgments. And
20 where possible, we have provided quantifiable
21 information.

22 Q. All right. Mr. Snelson, did you
23 consider doing a duplicate run of the information that
24 was provided to you to see whether or not a different
25 group of individuals with similar expertise would come

1 up with remotely the same type of plan?

2 A. Ontario Hydro has one board of
3 directors, one set of senior executives, one group of
4 planners from a variety of disciplines. I don't
5 believe that is practical.

6 Q. So you did not consider talking it to
7 an outside group.

8 A. Not my knowledge.

9 Q. Now, Mr. Snelson, I know that you
10 disagreed with the concept of applying a numerical
11 approach to all criteria, but I would just like to ask
12 you that if you did use that kind of approach, would
13 that not help with at least the aspect of determining
14 whether or not a plan was capable of being replicated?

15 A. No, I don't believe so.

16 Q. Can you please explain to me why you
17 don't believe that.

18 A. I believe that if you place
19 numerical weights on individual criteria, then all the
20 same judgmental and subjective factors that have been
21 taken into account will also come into account in
22 placing those weights on the factors.

23 Q. Would you agree that that might make
24 it a little easier to pinpoint where the differences of
25 opinion occur?

1 A. Not necessarily, because I think that
2 we would have a great deal of difficulty putting
3 weights on the factors to explain to anybody else,
4 because the weights change with time and they also
5 change with the circumstances. If you are in a
6 situation where you are faced with very high
7 environmental emissions and a great need to reduce
8 them, then that will be something that carries a large
9 weight in that current round of planning decisions. A
10 later round of planning decisions where environmental
11 emissions are lower but costs are very high may put
12 more weight on lowering cost.

13 Q. But the fact that you have put more
14 or less weight on criteria would be easier for outsider
15 to follow how you have done that if you did use
16 numerical weights, correct? Whether or not they agree
17 with the weights that you put on, it would be easier
18 for them to follow the decision.

19 A. I believe we have attempted to do
20 this that in previous planning processes and our view
21 was that it did not aid in the planning process.

22 Q. Did you take any of those planning
23 processes to an outside team as I suggested in the
24 hypothetical?

25 A. My understanding is that we have

1 attempted this approach on some transmission approvals
2 and that it was stopped because it was not found to be
3 helpful.

4 Q. All right, sir. Do you have any
5 reports or documentations explaining why or why it was
6 not helpful?

7 Could we perhaps do an undertaking on
8 that? If there are reports or documentation, we'd
9 appreciate having our expert take a look at them.

10 THE CHAIRMAN: Just a moment. They are
11 consulting to see. They haven't got the answer yet.

12 MR. SNELSON: The answer is that none of
13 us that are here are aware of any such reports.

14 MS. MARLATT: All right.

15 MRS. FORMUSA: There was a discussion of
16 the numerical weighting scheme that was undertaken in
17 the Southwestern Ontario transmission hearing and the
18 Board's reasons for decision and that might be useful
19 to you. And they reviewed that analysis there and the
20 usefulness of it.

21 MS. MARLATT: Q. If anything else comes
22 to your attention, you will let me know that? Thank
23 you. I appreciate that.

24 MR. SHALABY: A. I was wondering if you
25 consider the review by the technical advisory committee

1 that was discussed here a day or two ago. Whether you
2 consider that a review by an external group of the
3 planning process?

4 Q. I guess my question would be whether
5 or not you consider that to be an external review?

6 A. Yes, I would. Now, it isn't the
7 matter of numerical weights that can be replicated as
8 you indicate. But it is certainly a group of external
9 experts, and their credentials are all in the exhibit.
10 I'm trying to find the exhibit number, it is somewhere
11 in the 70s.

12 At any rate, it is a group of five, I
13 believe, external experts that looked at Hydro's plans
14 and Hydro's planning strategy in particular, and made
15 comments. We went through the recommendations, if you
16 recall, here one by one. Exhibit 68.

17 Q. Thank you. Mr. Snelson, would you
18 agree with me, then, that planning criteria that you
19 may apply may change over time; is that correct?

20 MR. SNELSON: A. No, I think that the
21 planning criteria that we have listed in the
22 demand/supply planning strategy are quite a robust set
23 of criteria and are unlikely to change substantially
24 over time.

25 Q. But those criteria have arrived, you

1 have arrived at them out of consultation process;
2 correct?

3 A. We certainly took into account the
4 consultation and the determination of the demand/supply
5 planning strategy in it's totality and those criteria
6 are part of the strategy.

7 Q. But as you continue to work in your
8 consultation processes, and it is my understanding that
9 you are continuing to work on your consultation
10 processes particularly with groups such as First
11 Nations, they may or may not have additional criteria
12 that you have not thought of yet.

13 A. That is a possibility but as I say I
14 think it is a pretty broad set of criteria that we have
15 there and I would expect that the results of
16 consultation are more likely to be in the area of how
17 do you apply the criteria rather than generating new
18 criteria.

19 Q. That may be true. But as your
20 consultation process changes, you really don't know
21 right now whether First Nations would have any
22 additional criteria.

23 A. I don't know whether that would be
24 the case, or not.

25 Q. With regards to the prioritizing

1 which you have just reviewed now, you would agree that
2 as First Nation's thoughts and opinions on these
3 matters become more apparent to Ontario Hydro, that
4 their priorities may be different from some of the
5 priorities you have set right now and that is something
6 that will have to be taken into account with further
7 planning; would you agree with me?

8 A. That is one of many inputs to
9 planning.

10 Q. Mr. Snelson, would you agree with me
11 that option preferences cannot be selected in a void of
12 information, that you need certain information about
13 the existing environment in Ontario in order to make
14 determinations about whether certain options are
15 acceptable within this province; would you agree with
16 that?

17 A. There are some judgments I would be
18 able to make without a great deal of investigation of
19 the existing situation. There are other judgments that
20 do require that knowledge.

21 Q. And such knowledge could be presented
22 in the form of a constraint map. You could do a
23 mapping of Ontario to look and see where registered
24 land claims are or areas of natural and scientific
25 interest or sacred areas, areas like that within

1 Ontario. You could use that as information to be
2 provided into your planning; correct?

3 A. I believe that is regularly input
4 into decisions such as transmission routing and siting
5 of transformer stations and generating stations.

6 Q. But you don't consider that type of
7 information on a planning level, then?

8 A. At a level where specific sites have
9 not been identified or specific routes have not been
10 identified, then that is a degree of detail which one
11 would not normally go into.

12 Q. All right. But then it would be
13 difficult, I would ask you if it would be difficult to
14 state with any certainty that any of your major supply
15 options, if you were asking for approval for them,
16 could actually be sited anywhere in Ontario?

17 A. In Exhibit 3, we did discuss
18 illustrative siting as a basis for doing that.

19 Q. Correct. But your illustrative
20 siting in Exhibit 3 did not consider an idea such as a
21 constraint mapping with exclusive areas in the province
22 that you could not develop in for whatever reason.
23 That was not how the analysis was done in Exhibit 3; is
24 that correct?

25 A. It was not done using that method.

1 Q. Thank you. Mr. Snelson, would you
2 agree with me that if you had more extensive base line
3 data for the province, in all the environmental
4 meanings, both economic, social, and natural
5 environment, that that would have been of assistance to
6 you in this type of planning?

7 A. More data on the broad issues that
8 affect planning, if available, can help to improve
9 planning. More detail about specific areas and so on
10 probably can't be accommodated readily in a broad level
11 planning process. That sort of detail is appropriate
12 and is necessary at project-specific siting studies and
13 transmission routing studies.

14 Q. All right, sir. Let's take some of
15 the first type of data. Let's say you had more
16 information or any information available to you on the
17 existing levels of emissions within Ontario. All
18 emissions into the atmosphere and the types of impact
19 of those emissions within Ontario. Would that not be
20 helpful to you in assessing whether or not a fossil
21 fuel option is a practical reality for Ontario Hydro to
22 use over the next 25 years? Would you agree with me
23 that that would be helpful in making that kind of
24 determination?

25 MS. HOWES: A. Yes, I would agree that

1 would be helpful.

2 Q. Thank you. Now, in terms of the more
3 specific information which you were just referring to,
4 Mr. Snelson, would you agree with me that if you had
5 some idea of the total contaminant loading for a
6 region, such as all the mercury contamination in the
7 Lake Nipigon water shed, that that would be useful to
8 you in determining whether or not hydroelectric
9 facilities are an option for the future?

10 Ms. Howes, please feel free to answer if
11 it is more appropriate for you.

12 [3:40 p.m.]

13 A. I would say that level of information
14 would certainly be appropriate for siting level,
15 project level work definitely.

16 Q. Well, I don't want to get back into
17 Panel 6, but would it not be, as a planning principle,
18 useful information for you to have in determining how
19 much hydroelectric you could really site in Ontario if
20 you had that type of information? It would tell you
21 more about the existing natural environment in Ontario;
22 would it not?

23 A. It certainly would. I though feel
24 quite confident that we have adequate information for
25 the kinds of approvals that we are seeking at this

1 stage.

2 I would agree that more detailed
3 information is definitely needed on a project or
4 site-specific area and that level of detail you are
5 describing would be most appropriate there.

6 Q. You say you feel confident you have
7 all the data that you require. But you would you not
8 agree with me, in fact did you not agree with me two
9 questions ago that if you had more data for areas such
10 as the emissions level in Ontario, that would be useful
11 to you in your planning process?

12 A. Well, I think we have that
13 information, and we have a good sense, for example, of
14 SO(2) and NOx emissions in the province. We have a
15 sense of what Ontario Hydro's contribution to the
16 province's emissions are, we have a good sense of how
17 much of those emissions are coming across from the
18 United States, for example. I think we have a sense of
19 the scientific basis for the regulations, et cetera.
20 So that information is known to us.

21 Q. But information such as adding the
22 non-utility generation emissions onto Ontario Hydro's
23 emissions, that information you have not calculated;
24 correct?

25 A. Oh, yes we have. I think I referred

1 to it, I think it is contained in Exhibit 452. I get
2 these confused. J or E.

3 Q. We will get there in a minute. So
4 let's get back to that.

5 THE CHAIRMAN: Perhaps we could take the
6 break.

7 MS. MARLATT: That is fine.

8 THE CHAIRMAN: We will take the break for
9 15 minutes.

10 THE REGISTRAR: Please come to order.
11 This hearing will recess for 15 minutes.

12 ---Recess at 3:44 p.m.

13 ---On resuming at 4:00 p.m.

14 THE REGISTRAR: Please come to order.
15 This hearing is again in session. Be seated, please.

16 MS. MARLATT: Q. Mr. Snelson, in your
17 work as planner, have you encountered or are you aware
18 of the role that Elders play in Aboriginal culture? I

19 I will give you a specific example. Are
20 you aware that part of their role is as planners for
21 their communities, as historians for the past, and as
22 guides to the future for their communities?

23 MR. SNELSON: A. Personally I am not
24 aware of the role of Elders in Aboriginal communities.

25 Q. Have you considered ever meeting or

1 requesting a meeting with Aboriginal Elders to discuss
2 planning issues, general planning issues?

3 A. I believe that Dr. Tennyson probably
4 could answer that question better than I can.

5 Q. Actually, I was just looking for an
6 answer specific to you, Mr. Snelson, in your role as a
7 planner. I am sure Dr. Tennyson has met with Elders.
8 I will ask her, but I am sure of that.

9 But, Mr. Snelson, have you considered
10 personally meeting with Elders?

11 A. No. I have been part of the broad
12 provincial consultation programs with respect to the
13 demand/supply option study.

14 Q. But in that did you ever sit down in
15 a room and talk to Aboriginal Elders?

16 A. No, I did not.

17 Q. Dr. Tennyson, please continue?

18 DR. TENNYSON: A. If I can could just
19 speak to that point a little bit and I think it comes
20 up.

21 In terms of a planning sort of role, as I
22 have tried to indicate earlier, a number of us at
23 Ontario Hydro are involved in what is called planning.
24 So, for example, when there is consultation at a broad
25 provincial level that the planners of the type that you

1 are talking to are interested in, then it's groups like
2 mine and the others in the Corporation that help design
3 the consultation program and bring the appropriate
4 people to those meetings.

5 Certainly in terms of the feedback
6 program we had, it was a corporate program where out at
7 each centre there were people that represented my
8 function, represented the corporate planning function
9 and others, regional people and others.

10 So if we were designing any kind of
11 meetings to consult with the Elders, then we would
12 bring the various technical people, as I say, the
13 environmental people, and the sort of social community
14 people to meet and learn from the Elders in the
15 community.

16 Q. And Mr. Snelson just hasn't been
17 fortunate enough to be included yet?

18 A. That's correct.

19 Q. In the area of shelf life, I would
20 like to refer to you pages 6 and 7 of our materials.
21 And Mr. Snelson, I believe at the bottom, and this is
22 transcript Volume 150, page 26507 and you were talking
23 about the five years being it's a reasonableness sort
24 of criteria.

25 I was wondering, Mr. Snelson, would it be

1 accurate to say that the concept of a five-year action
2 plan parameter was partially designed in order to
3 recognize the concern that you have with shelf life of
4 approvals? Is that accurate, it was part of your
5 choice of five years?

6 MR. SNELSON: A. Yes, I think that's one
7 part of that judgment, yes.

8 Q. So one way to determine or to address
9 the appropriate length of time during which planning
10 approvals may be fresh is to use a time limit, that's
11 one way to do it, and you have chosen five years;
12 correct?

13 A. No, I don't believe the approvals we
14 are requesting are time-limited.

15 Q. Well, would you agree with me that
16 the problem with shelf life as you have described it to
17 date, has been the concern that approvals received at a
18 hearing may not be fresh or may not be usable after a
19 certain length of time or after certain intervening
20 events have occurred?

21 A. That is the concept of shelf life,
22 yes.

23 Q. So one of the ways to struggle with
24 the concept of shelf life is to determine whether or
25 not there is a length of time during which those

1 approvals could be used, or whether you could identify
2 specific intervening events that may alter whether or
3 not those approvals are still useful; correct?

4 A. I don't believe that we have
5 identified either of those as a part of the approvals.

6 Q. All right. Mr. Snelson, would you
7 agree with me that one of the concerns about the
8 planning process is to make sure that it is flexible
9 and able to reflect changing circumstances?

10 A. Yes.

11 Q. And a perfect example of that is the
12 1989 to 1992 time period over which we had certain
13 changing circumstances which you have identified in
14 that exhibit that we have just looked at; correct?

15 A. There were significant changes
16 between '89 and '92 and that's why we have produced the
17 Update.

18 Q. If a planning process is not
19 flexible, then we could be faced with a situation of
20 overbuilding or underbuilding; is that correct?

21 A. At the stage of plan approvals,
22 that's not correct.

23 Q. All right. The end result of plan
24 approvals are that Ontario Hydro could start out in a
25 certain direction, and if it's not -- if it does not

1 possess a sufficiently flexible planning process for
2 implementing those approvals, there could be
3 overbuilding or underbuilding of projects; would you
4 agree with that?

5 A. Ontario Hydro reviews all commitments
6 prior to committing construction of an option, whether
7 or not -- which is independent of the planning process
8 by which that approval has been obtained, and would not
9 commit the construction of an option that was not
10 required.

11 Q. All right. That's very helpful.
12 Thank you, Mr. Snelson.

13 In considering factors which would help
14 illuminate what a shelf life of an approval may be,
15 would you consider the public acceptability of the
16 process used for determining the shelf life? So, for
17 example, is that one of the things you would take back
18 to public consultation?

19 A. What is the public consultation on?

20 Q. Well, I am looking at something like
21 the consultation process that you have used as part of
22 the Demand/Supply Plan. Was there consultations
23 specifically with regards to what the public conceived
24 of or understood shelf life to be?

25 DR. TENNYSON: A. To my knowledge I

1 don't think so. I know that we did ask for comments on
2 the type of planning process and in terms of one of the
3 report's findings was that they felt that the planning
4 and government review process should be open to the
5 public and matters like that. So I know there were
6 comments on that. I don't think there were specific
7 comments on not asking them a question on shelf life
8 per se.

9 Q. Okay. Thank you.

10 On the concept of approvals banking, I
11 know that you have been asked quite a few questions on
12 this today, I have just a few more.

13 Pages 13 and 14 of our materials, and
14 this is from Volume 151, pages 26638 to 26639, and this
15 was, or it appears to me to be a discussion about the
16 factors that you used to determine whether to seek an
17 approval for an option.

18 Do you recall this conversation, Mr.
19 Snelson?

20 MR. SNELSON: A. Generally speaking I
21 do, yes.

22 Q. I would just like to try to summarize
23 some of the factors that you said you considered in
24 determining whether or not to ask for an approval of a
25 certain option. I would like to see whether or not you

1 would agree with me list. Factor No. 1 is cost; No. 2,
2 likelihood of success, and No. 3, shelf life of
3 approval, and No. 4, integration with the plan for the
4 future.

5 Would those be four factors that you
6 consider in determining whether or not to go forward
7 with a request for an approval?

8 A. Can you give them to me one at a time
9 because I had thought that was going to be a list that
10 I had created somewhere and I don't see it.

11 Q. Let's perhaps go through it in your
12 own words.

13 Looking at page 26639, line 3, you state:

14 "Well, as I have said, cost is a
15 factor, but there are other
16 considerations."

17 A. Yes.

18 Q. All right, so that is No. 1.

19 No. 2 I identified at line 13, and this
20 is where you state that there are at least three
21 factors, I assumed you meant three other factors
22 including costs, but correct me if I am wrong. Line 13
23 where you say:

24 "One is the degree of success that one
25 is likely to have seeking approvals so

1 far off into the future...."

2 Would you agree with me you see that as a
3 factor?

4 A. Yes. And I think in the discussion
5 with Mr. Starkman this afternoon, he rephrased that in
6 a way which I think was better, in that he said, well,
7 it's not worth seeking approvals for something where
8 you can't demonstrate a need. I think that summarizes
9 it.

10 Q. Would you agree that in determining
11 in your own mind what the likelihood of success is, you
12 consider both the need and whether or not it is part of
13 an adequate planning process?

14 A. Well, there are obviously many
15 factors that go into the success of an approval. But
16 it seems to me the fundamental point that I am was
17 trying to get at there is whether in fact the option
18 was needed and you could demonstrate a clear need
19 today, and if you can't demonstrate a clear need, then
20 there is not much point in asking for an approval.

21 Q. Looking to line 17 I had thought that
22 you had identified a third factor there.

23 "Another is the question as to the
24 shelf life of approvals..."

25 A. And this was with respect to approval

1 banking. The whole discussion was with respect to
2 approval banking.

3 And clearly the fact that approvals may
4 become unusable over time is a factor in whether or not
5 you would seek approvals early.

6 Q. Okay. And fourthly at line 21 you
7 say:

8 "The third point goes back to
9 essentially your hypothesis, which is
10 that you have decided what is your plan
11 for the future."

12 A. And this was the question of the
13 selection of options, was the point that Mr. Mark was
14 discussing. And as regards major supply base load
15 options, at this point in time we are not in a position
16 to be able to state a preference for either fossil or
17 nuclear options.

18 Q. All right. Mr. Snelson, I understand
19 that it is your testimony today that you are not
20 approvals banking as part of your Update. But would
21 you agree with me that if you were to take a route that
22 involved approvals banking, that that type of activity
23 would impact or may impact on the public acceptance of
24 Ontario Hydro's activities?

25 A. I think it is a two-way result, that

1 public acceptance is clearly a factor.

2 Q. So credibility is what I am looking
3 at, credibility. Ontario Hydro says we need these
4 facilities and we can prove the need.

5 A. I think the second one of your points
6 really boils down to the fact that we don't see it as
7 being a reasonable and prudent thing to do, to be
8 seeking approval for options if you can't demonstrate a
9 clear need.

10 Q. But would you agree with me that if
11 you were to do that it may affect your public
12 credibility?

13 A. Among other things, yes.

14 Q. Another term that you used in your
15 description of your planning process was the term
16 just-in-time planning, which is essentially -- or would
17 you agree with me that it is, in essence, a planning
18 concept in opposition to approvals banking?

19 A. I believe there was some discussion
20 by Mr. Shalaby around that term.

21 Q. All right. Mr. Shalaby?

22 MR. SHALABY: A. We call it just-in-time
23 commitments, and I don't see that necessarily to be in
24 contradiction with approvals banking.

25 Q. So you think that if you were using a

1 planning system that involved approvals banking, you
2 could also use just-in-time commitments?

3 A. Yes.

4 Q. Would you explain to me how you would
5 do that?

6 A. You would have approvals that you
7 have obtained at a previous time and activate them as
8 needed. You act on them when the time is right.

9 Q. All right. Looking at the term
10 just-in-time commitments, would you not agree with me
11 that the just-in-time commitment would be seeking new
12 approvals when you are sure of the need for such
13 approvals?

14 A. Perhaps I was speaking of approvals
15 that are similar in nature to the ones we are asking
16 this Board to grant, approvals of rationale and need.

17 Q. I am looking at, take for example the
18 fossil and nuclear discussion. I thought that part of
19 that discussion had been that the method of planning
20 would include just-in-time, so you would not make those
21 decisions until you had to, so you would have enough
22 information that you felt was needed to make that kind
23 of decision; correct?

24 A. That is our position now on fossil
25 and nuclear, yes.

1 Q. All right. My answer applies to
2 things like the hydraulic program, for example, getting
3 approval for the rationale and need for the hydraulic
4 approvals, and then acting them on in time are
5 consistent concepts.

6 [4:16 p.m.]

7 Looking at the consequences of
8 overbuilding which you may disagree, but I present to
9 you as the consequence of approvals banking or
10 potential consequence of approvals banking, and I would
11 like to review with you some testimony that you gave
12 about the Little Jackfish process, and that is at page
13 23 and 24. This is from Volume 151, pages 26778 to
14 26779.

15 Now, Mr. Snelson, in your discussion here
16 you discuss the economics of Little Jackfish, and then
17 on the following page at the top you went on to state
18 that:

19 "And that there has been some advice
20 that if the project is stopped and shut
21 down for a long period of time, then
22 maybe we can't restart it. The reason
23 for that is that it was started in the
24 mid-1980s and shut down -- in the early
25 1980s and shut down in the mid-1980s, we

1 got everybody in the area interested in
2 the project, we were going through public
3 meetings and so on, and then we cancelled
4 because of a lack of need. And now the
5 project is going again, and if it was to
6 be another off-again situation, then
7 there have been views expressed in the
8 organization that there would be
9 difficulty in getting the project going
10 again and convincing people that we were
11 serious and that we weren't just playing
12 around and wasting people's time.
13 Do you recall this testimony, Mr.

14 Snelson?

15 A. Yes, I do. It was relative to the
16 assumptions about Little Jackfish in the illustrative
17 surplus management case.

18 Q. I am looking at it more in a general
19 level, and my questions are on a general level to you,
20 Mr. Snelson.

21 Would you agree with me that the end
22 result of this has been that the communities around
23 Little Jackfish have had this project over their head
24 for at least 10 years now without knowing what is going
25 to happen?

1 Dr. Tennyson, feel free to answer if you
2 would like to.

3 DR. TENNYSON: A. I don't know if I can
4 give you a good answer. I know that the project has
5 been around a long time, that people have been involved
6 with it, that there have been ongoing decisions.

7 I don't know that I would characterize it
8 as hanging over their heads. I think that a lot of
9 progress has been made on dealing with the communities
10 in the area.

11 Q. All right. Dr. Tennyson, are we not
12 in a situation now, though, where over 10 years later
13 the government review hasn't even been released yet?

14 A. To my knowledge, that's correct, yes.

15 Q. And the concern that I see being
16 expressed here is that it may be difficult getting
17 projects going again once they have been stopped
18 repeatedly. Can you see that happening on a
19 communities basis?

20 A. Definitely.

21 Q. And would you agree with me that time
22 and effort and resources are put into dealing with
23 Ontario Hydro by local communities when such projects
24 are put on again, off again, on again? Whether or not
25 you think that is wasted time in resource, would you

1 agree that it takes up time and effort and resources?

2 A. I think any long-term planning
3 project does that. It does take up time and resources.

4 Q. Would you agree that a long-term
5 planning program that has this kind of on again/off
6 again may add to a level of frustration for a
7 community? Whether or not you agree if it has done
8 that, would you agree that that is a possibility that
9 you have to consider in your planning?

10 A. Certainly.

11 Q. Thank you. And looking at the
12 Northshore area, I would draw an analogy which you may
13 or may not agree with, where in the 1970s we had
14 studies occurring to do with quite site-specific
15 studies on the North Channel. The studies then stopped
16 during the 1980s and there was a lull. In the late
17 1980s studies started up again and then stopped again
18 quite dramatically in 1990. Do you agree with that
19 characterization?

20 A. I would agree they started up again
21 and they stopped quite dramatically, yes. But clearly
22 I do have to add that it wasn't altogether because of
23 Ontario Hydro that those events occurred.

24 Q. Actually, Dr. Tennyson, my questions
25 aren't directed at whose fault it is necessarily, it is

1 just the type of impact that can result on what are
2 small communities who have limited resources and
3 efforts who have to concentrate on something, then to
4 have it stopped, then to have it started again, that
5 that may affect the way in which they choose to deploy
6 their people and resources and concerns and
7 commitments.

8 A. No question. But I would like to
9 point out that in terms of -- we certainly try to
10 facilitate group involvement in our processes and try
11 to minimize that kind of -- but it does take time and
12 effort, no question.

13 The other thing I might offer is that one
14 thing about over time is that people do become much
15 more knowledgeable about the issues, get a chance to
16 really understand their own concerns and the potential
17 impact. So becoming knowledgeable about planning
18 processes is probably something that I would see as a
19 benefit, as well.

20 Q. If we had communities, though, that
21 in the 1970s had determined where they stood with
22 regards to a particular technology and were faced with
23 a situation where that technology was brought back
24 before them and then taken away, brought back before
25 them, that that may be stressful on those communities

1 if they had already determined what their own plans
2 were for their communities and determined that this
3 project did not fit within their own plans.

4 A. I would, quite frankly, find it very
5 surprising that a community's views necessarily stayed
6 the same from the 70s through to the late 80s and now
7 into the 90s.

8 In the communities that I have worked in,
9 there is no one even monolithic community view as to
10 the appropriateness of technology or the potential
11 benefits or disbenefits of a project.

12 So I suspect, from my point of view, I
13 would want to ask these people quite regularly how they
14 felt about a project and a particular technology. Now,
15 the view may be the same, which is fine. But I would
16 want to ask the question.

17 Q. And, Dr. Tennyson, will you be around
18 during evidence that intervenors are bringing before
19 this panel, do you know?

20 A. What do you mean, "be around"?

21 Q. I was just wondering if you would be
22 present when intervenors bring evidence before this
23 Board on how such communities felt about these
24 projects.

25 A. I'm sure that I will have access to

1 that and I will be very interested.

2 Q. And it is possible that information
3 could come before you that would change your opinion?

4 A. Well, quite frankly, I mean,
5 depending on what we were talking about, I don't know
6 what my opinion is. You would have to give me an
7 example of what it is. If you are thinking of my
8 opinion that I would be surprised that a certain view
9 or position had stayed static for 17 years, yes, I
10 might be surprised to hear that.

11 Q. Let me give you a specific view. You
12 would be surprised, then, that a view such as nuclear
13 power is considered incompatible with Aboriginal
14 culture and community and lifestyle, you would find it
15 surprising that that view could be held over 17 years,
16 over much more than 17 years?

17 A. I guess what I would be surprised at
18 most is that if that is considered by everyone in the
19 culture to be the view, because that is not my
20 understanding. But, you know, as I say, I will be --
21 and I'm sure everyone will be interested in hearing
22 that.

23 Q. And, for example, views from Elders
24 would be very useful in determining how the Aboriginal
25 culture may relate to such technologies.

1 A. In all my work on projects, the views
2 of the Elders have been critical to the community's
3 views and to the processes. So, yes, I'm sure I will
4 look forward to hearing from the Elders.

5 Q. All right. Looking at the SPR again
6 on page 49. Sorry, that's a Statement of Political
7 Relations. Dr. Tennyson, when we were looking at this
8 document previously we were discussing the role that
9 Aboriginal title and treaty rights issues plays within
10 the Ontario Hydro planning process. An interrogatory
11 that is just after that document, which is
12 Interrogatory 11.40.17--

13 THE REGISTRAR: That is 683.26.

14 ---EXHIBIT NO. 683.26: Interrogatory No. 11.40.17.

15 MS. MARLATT: Q. --states that Ontario
16 Hydro, the question is whether Ontario Hydro's has
17 undertaken any studies or requested any legal opinions
18 as to the impact of demand/supply plan on Aboriginal
19 and treaty rights.

20 Would you confirm that the answer to this
21 is still no?

22 DR. TENNYSON: A. To the best of my
23 knowledge in terms of the Demand/Supply Plan, that is
24 probably the correct answer.

25 What I am talking about is on our -- once

1 again, the project-specific studies that have been
2 undertaken as sort of at the same time as this hearing
3 has been taking place, that those rights are being
4 discussed. And as I said, the First Nations will be
5 telling us how their activities associated with those
6 rights may or may not be affected.

7 Q. So at the planning level, Ontario
8 Hydro has not addressed this issue?

9 A. To my knowledge, no, not at this
10 time.

11 Q. The following document on page 51 is
12 a Union of Ontario Indians Issue Statement on
13 Environmental Issues and Aboriginal Relations.

14 Dr. Tennyson, have you seen this
15 document before? I should tell you that it was sent to
16 Sam Horton, Vice-president of Aboriginal Relations, in
17 1991. Have you seen it since then?

18 A. No, I have not seen it.

19 Q. I would just like to ask you whether
20 or not you agree with two of the statements in here.

21 No. 4. The role of Aboriginal
22 leadership and their communities in the
23 planning, design and future operation
24 strategy of a proposed project must be
25 defined before an impact assessment

1 statement produced by Ontario Hydro
2 staff.

3 Would you agree with that?

4 A. Just a second.

5 Q. Please take your time to read it over
6 and see whether or not you would agree.

7 A. I guess I will answer it the way I
8 would like to answer it and you can tell me if I'm
9 answering your question, or not.

10 In terms of any of the work we do on
11 projects, what we have been doing is going out and
12 asking First Nations and their leadership if and how
13 they would like to be involved. To me that is how I
14 would define a role. And we certainly have done that
15 and asked those questions and attempted to establish
16 the working relationships in terms of producing our
17 environmental impact assessment.

18 So based on that, certainly we would have
19 those discussions on the role and on how we would work
20 together before the report would be finalized, yes. So
21 I think that agrees with it.

22 Q. Thank you. That was helpful.

23 No. 6. Recognition of the inherently
24 different communication techniques and
25 procedures required in any liaison

1 program or public consultation process
2 for Aboriginal community participation in
3 this planning process is necessary to
4 designing a program.

5 Do you agree with that?

6 A. The one thing, to design what
7 program? Any program of activities or program of
8 consultation or...

9 Q. Let's take it in the broad sense of
10 program of how Ontario Hydro conducts its consultation
11 processes for anything.

12 A. Okay. What I would to speak to is
13 the fact that that is -- on a corporate level, on a
14 broad level there are consultation processes being
15 worked out that would be done in conjunction and would
16 address any different communication techniques and
17 procedures.

18 Certainly in my own work, clearly we try
19 to address whether or not there needs to be translation
20 of materials, translations, whether or not for example
21 we like to have the community meetings, and they are
22 long sessions, so that I think that it's culturally
23 appropriate, and we take the advice of the communities
24 themselves and their chiefs on how we should do these
25 activities. So I think at all levels we are meeting

1 that.

2 Q. And you would agree with me, Dr.
3 Tennyson, that this is an ongoing activity that Ontario
4 Hydro is involved in, trying to improve its
5 consultation with First Nations?

6 A. Definitely.

7 Q. Page 57 of our materials, this is
8 Interrogatory 11.4.2.

9 THE REGISTRAR: .27.

10 ---EXHIBIT NO. 683.27: Interrogatory No. 11.4.2.

11 MS. MARLATT: Q. And this is a question
12 with regards to the preparation of the DSP concerning
13 social impacts. We had requested all original data,
14 opinions, reports and surveys which were used in the
15 preparation of the DSP concerning social impacts.

16 The answer to this interrogatory refers
17 us to Little Jackfish hydroelectric project, which I am
18 sure you are familiar with, Dr. Tennyson. Would you
19 agree with me that potential social impacts from a
20 hydroelectric facility could be quite different from
21 social impacts resulting from transmission line
22 construction, fossil or nuclear generating stations?
23 There is not necessarily identical social impacts
24 arising from all of those types of projects?

25 [4:30 p.m.]

1 A. I would agree in the sense that
2 clearly some impact categories would be the same. I
3 mean, if we are going to look at employment, we are
4 going to look at employment from different projects.

5 I think that there are different impacts
6 in terms of whether or not something is a generation
7 facility in a site and a linear facility, let's say, so
8 they can be different.

9 I think once again one of the definitions
10 that we work with in terms of social impacts is that
11 impacts travel through the natural environment and then
12 affect people. So when they start to affect people
13 that is an area of social impacts that I would have to
14 address, and I think that there are different impacts
15 in that sense from different types of facilities, yes.

16 Q. So, for example, the flooding of a
17 certain area related to a hydroelectric project may be
18 the same amount of land as a nuclear site requires, but
19 the impacts could be different from the different uses
20 of that land; would you agree with me on that?

21 A. Yes.

22 Q. I would like to refer to you the next
23 interrogatory which is page 58, that's interrogatory
24 11.14.71.

25 THE REGISTRAR: .28.

1 THE CHAIRMAN: Thank you.

2 ---EXHIBIT NO. 683.28: Interrogatory No. 11.14.71.

3 MS. MARLATT: Q. I would just like to
4 you refer to the answer to that one interrogatory, one
5 sentence, it states:

6 The social impact assessment is
7 qualitative because the program approvals
8 sought are not specific to any one or
9 more sites.

10 Would you agree with me, Dr. Tennyson,
11 that there may be ways to quantify social impact
12 assessment, and I will give you some examples, and let
13 me know whether or not you think they would be possible
14 ways: To quantify both the direct and indirect
15 employment impacts on a region, you could quantify
16 that?

17 DR. TENNYSON: A. Not at this level of
18 analysis.

19 I think that's one of the things that
20 I -- I don't know if it's been clear at all, our work
21 or my particular type of work is very much community
22 based and community oriented, and I would extend that
23 to, of course, the region when I say that as well.

24 What we try to do, I can say, for
25 example, I don't know, for example, with the plan, we

1 didn't do a site-specific, where it was going, okay,
2 specifically. So in general terms we could quantify
3 the number of direct jobs for options or in general
4 looking at sort of a plan.

5 But in terms of my kind of work in terms
6 of the indirect, as you were asking for a community or
7 a region, I would want to know the specifics of that
8 area. So in a sense what we did in the plan, because
9 we did not have the community basis, like how many
10 other businesses are there, what other businesses can
11 pick up on this, what would be the multipliers in a
12 particular area, that's the kind of work I would do at
13 a project-specific level.

14 So what you have in the environmental
15 analysis is more like a typology, so at a plan level
16 you have got certain things you could predict in less
17 developed areas versus more developed areas. And
18 clearly, what we are arguing is that a less developed
19 area would need to build a lot more infrastructure for
20 example, new businesses would have to open perhaps to
21 pick up on the kind of more indirect spending, whereas
22 in a developed area that already has a lot of that
23 infrastructure and has the related businesses and
24 services perhaps can capitalize in a different way, so
25 that's the sense of how we did it.

1 Q. All right. In discussing the
2 developed versus less developed areas of the province,
3 you haven't produced any one document on that issue,
4 have you? There is not any one document that discusses
5 a difference between Southern Ontario, Northern
6 Ontario, or parts of Northern Ontario, or rural versus
7 urban environments?

8 A. No. But what I am suggesting is that
9 you can do typologies like that. I am suggesting the
10 one I used was less developed versus more developed
11 areas.

12 Q. And you have given some testimony on
13 that, but you did not use any report or background
14 documents you filed here at the hearing on that
15 specific subject?

16 A. What I have said, I think it is in --
17 I said it in my direct, and I think there has been an
18 interrogatory go out because people have asked where
19 the criteria came from, what we based things on. What
20 I have said before is there are a number of Ontario
21 Hydro reports that are listed in that.

22 Clearly, we make judgments based on past
23 experience with the projects in particular locations.
24 But a lot of my sense of what can happen in developed
25 versus less developed areas is based on the literature

1 in the field. There is quite an extensive literature
2 on what has happened in those types of areas. So I am
3 basing it on that as well.

4 Q. Are you basing it on any information
5 or have you seen any information on the impacts on a
6 less developed area or rural environment of a project
7 the size of a nuclear plant?

8 A. Well, in fact, most of the -- I can't
9 say most. A lot of the literature in the U.S. that
10 does discuss these kinds of social impacts are a result
11 of nuclear siting.

12 Q. In areas such as the regions of
13 Northern Ontario that have been looked at in the past
14 for nuclear?

15 A. I wouldn't characterize them as the
16 same. That's why as far as I would to go was to use
17 the kind of statements out of the literature like
18 rural, remote areas.

19 Parts of Northern Ontario are very tapped
20 into the urban industrial society and I don't feel that
21 they are rural or remote. There are pockets in
22 Northern Ontario that are, just as there are in
23 Southwestern Ontario or Eastern Ontario, and that was
24 the kind of distinctions that I was trying to make.

25 Q. In that literature have you come

1 across any distinctions on impacts of such large scale
2 developments, particularly nuclear, on Aboriginal
3 peoples?

4 A. Certainly I haven't studied the
5 literature in the depth, but I would assume you are
6 aware that over the last, it's got to be 10 or 15
7 years, it's been legislated in the U.S. that any siting
8 and routing that potentially effects Aboriginal people
9 has their involvement, and I know there are articles
10 out there that do discuss the cases and what happened
11 in these particular situations.

12 Q. Was any of that information useful to
13 you as part of the demand/supply planning process?

14 A. The article I am referring to was
15 certainly, as far as I know, postdated the work I did
16 earlier on the Demand/Supply Plan back in the 80s.

17 Clearly a lot of the statements I make
18 today are based not only on results of the literature
19 but over the last few years I think I have had a great
20 deal of experience and involvement in dealing with
21 Aboriginal issues and concerns. So I am giving you the
22 benefit of my wisdom to this point in time.

23 Q. From the article that you said you
24 were referring to, would you be able to give me the
25 name of that article?

1 A. I can't off the top of my head but I
2 will get it for you.

3 Q. Dr. Tennyson, would you agree with me
4 that the more information that's available to you at a
5 planning level about issues around social and economic
6 impacts, that that may reduce the uncertainty at the
7 project level about whether or not that project can go
8 on, continue?

9 A. I think they are different. I think
10 that they are very, very different.

11 I think that the information that you
12 want at a plan level is the kind of broad information
13 we have. I think that in terms of the public
14 consultation that went on, as I indicated in my direct,
15 that was used in the development of the criteria, and
16 in fact in the discussion of the various types of
17 impacts and concerns that I described, and these have
18 changed over time.

19 So that the latest, some of the points
20 that I have made try to reflect what the feedback
21 program told us and what our other knowledge based on
22 projects is telling us today. That is in a broad sense
23 what you can say the public in certain instances feel
24 about certain situations.

25 I think that it is a very different

1 assessment when you do project specific because there
2 you get right down into the community, and that's where
3 you get your understanding of, for that particular
4 community or region, what are the impacts, what are the
5 potential impact management measures. And we take the
6 position in our work that no two communities are alike.

7 Q. All right. Then if that's your
8 position, Dr. Tennyson, perhaps you could explain to me
9 a section of -- it's on page 60 and 61 of our
10 materials. This is an extract from Exhibit 50, Meeting
11 Future Energy Needs, Draft Demand/Supply Planning
12 Strategy, Reference Report. This is the Analysis of
13 Representative Plans, Social and Community Impacts,
14 dated January 1987.

15 I would like to start by asking you, once
16 you have found it there--

17 A. Yes.

18 Q. --whether or not this paragraph is
19 still correct.

20 Looking at page 7, which is the following
21 page, the second paragraph states:

22 The comparison of plans assumes that
23 evaluation criteria are given equal
24 weight, with one exception. Because
25 Ontario has extensive experience in

1 mitigating project-related community
2 impacts, this criterion would be given
3 less weight than others.

4 Is that still correct, Dr. Tennyson?

5 A. I did not write this report but
6 certainly my group did, so I'm not going to not answer
7 the question.

8 I haven't even read the report, but if
9 they were doing -- I don't understand of the term
10 "weighting", I mean, if they did do a weighting
11 exercise because that's part of what that exercise was
12 and that was the decision that was made.

13 What I would like to speak to is that we
14 really do believe that in part of our approach in terms
15 of -- I don't mean to give it less weight, but I think
16 there is a real belief that in terms of project
17 specifics and local community impacts, that we have a
18 history, and I think a very good record of
19 understanding the community, understanding the impacts
20 and designing impact management measures that have
21 mitigated and offset negative impacts and have enhanced
22 benefits, and we continue to do that.

23 So that is, once again, a philosophy of
24 our approach. That we take a kind of, what I would
25 even call right now, a sort of upfront impact

1 management approach to social impact assessment in the
2 sense that while you are working through and
3 identifying potential impacts, you are also working
4 with communities to understand what would be measures
5 that would eliminate them or offset them, or readdress
6 them or compensate for them. So that is the spirit
7 within which this statement is made.

8 Q. Dr. Tennyson, I think you just also
9 told me that community impacts cannot be discussed past
10 a certain point at a plan level because of the nature
11 of communities, the different communities, and the
12 nature of projects.

13 A. Yes.

14 Q. So in my mind, I would ask you, is it
15 not difficult to presume that you will be able to
16 mitigate project-related community impacts?

17 A. What word did you use?

18 Q. I am using the wording from this
19 document. It says that because Hydro has extensive
20 experience in mitigating project related community
21 impacts, this criterion is given less weight than
22 others.

23 I would interpret that to mean, and
24 please correct me if I am wrong, that Ontario Hydro
25 assumes it will be able to mitigate community impacts

1 related to projects, and I am trying to marry that in
2 my mind with your statement that it is very difficult
3 to know what community impacts are until you get to a
4 project level.

5 A. It may be very difficult to know what
6 the specific impacts are and as well the specific
7 impact management measures because those are designed
8 and are in conjunction with and are appropriate to the
9 particular circumstances. But I don't think that
10 changes the belief or the idea or the knowledge that in
11 a particular situation, in a particular type of
12 community, that you could not meet that kind of
13 criterion. I think our experience tells us that we
14 can.

15 Q. Is it conceivable to you, Dr.
16 Tennyson, that a project may have to be abandoned
17 because of community impacts that cannot be mitigated?

18 A. Certainly.

19 Q. Thank you.

20 Now, with regards to just First Nation
21 peoples, am I correct in stating that Ontario Hydro has
22 never gone through an environmental assessment hearing
23 and proven that in front of a hearing that they can
24 identify and mitigate possible impacts on First Nation
25 people? That has not yet been done?

1 A. I find that a little difficult to
2 answer in the sense of certainly we have gone through
3 hearings, gotten approval, and ostensibly in those
4 instances there weren't the concerns identified on the
5 part of First Nations.

6 In recent time, not to my knowledge have
7 we gone to a hearing yet and had these concerns
8 discussed as a major issue, if that answers the
9 question.

10 Q. And an example of projects in which
11 there is likely to be a major issue would be Little
12 Jackfish, Mattagami; correct?

13 A. Yes.

14 Q. And those have not yet gone to a
15 hearing?

16 A. That's correct.

17 Q. And we don't even have a government
18 review on those environmental assessments; is that
19 correct?

20 A. That's correct, but I understand they
21 are pretty imminent.

22 Have they been saying that for a while?

23 Q. Sorry, I don't mean to laugh at your
24 answer, Dr. Tennyson. They seem to have been imminent
25 for sometime now, so...

1 I am sure that is your understanding,
2 though.

3 [4:47 p.m.]

4 So we don't have before us right now a
5 community impacts statement or document with regards to
6 First Nations people in Ontario. That is not something
7 that has happened to date, correct, the way that there
8 were community impact statements from the Bruce area.

9 A. Community impact statements? I'm not
10 sure what you mean by that.

11 Q. When the Bruce development was
12 occurring, Ontario Hydro did its community and the
13 term, you may use a slightly different term. They
14 worked together with the community in order come up
15 with a program to deal with the impacts that would
16 arise out of the project and mitigate. And if they
17 cannot mitigate, to compensate for those impacts;
18 correct?

19 A. Well, if you are referring to the
20 community impact agreement?

21 Q. Yes.

22 A. Yes. And that had a number of
23 provisions for addressing the impacts on the host
24 municipality, yes.

25 Q. And we don't have that type of

1 document yet that would deal with the host community
2 being a First Nation.

3 A. That's correct.

4 Q. Would you agree with me, Dr.
5 Tennyson, that in looking at local community impacts,
6 in analyzing those impacts we should consider the
7 nature of the community that is being involved.

8 A. Definitely.

9 Q. And that depending upon the nature of
10 that community, the social and economic impacts may
11 vary and may vary substantially.

12 A. Definitely.

13 Q. Moving into a slightly different area
14 but unfortunately still questions for you, Dr.
15 Tennyson, page 63, there were some committees discussed
16 in Panel 2. And I was just wondering if you have the
17 information about these committees, if you could update
18 me on their nature and on the members to those
19 committees. But I will ask you the questions and you
20 can just let me know whether or not that is information
21 that you have available to you. Starting with
22 Interrogatory No. 2.14.45.

23 THE REGISTRAR: .29.

24 ---EXHIBIT NO. 683.29: Interrogatory No. 2.14.45

25 MS. MARLATT: Q. This is an

1 interrogatory that discusses the environmental policy
2 committee in Ontario Hydro. And Ms. Howes, if this is
3 a question better for you, all right.

4 Has Ontario Hydro considered adding a
5 member of the Aboriginal Steering Committee or the
6 Aboriginal vice-presidents committee to this
7 environmental policy committee, do you know?

8 MS. HOWES: A. I think there are common
9 members between the Aboriginal Steering Committee and
10 the environmental policy committee, yes.

11 Q. So on the second page of that
12 interrogatory, the interrogatory answer, the structure,
13 when you look there, the members don't identify
14 vice-president from the Aboriginal relations committee
15 but that there is, in fact, overlap between personnel
16 members.

17 A. Yes, there is. Yes.

18 Q. Is that just a lucky coincidence or
19 was that done on purpose, do you know?

20 A. It was probably intentional, but I
21 would also suggest that there be environmental as well
22 as Aboriginal interests in many of these branches.

23 Q. Looking at the next interrogatory,
24 No. 2.14.43.

25 THE REGISTRAR: .30.

1 ---EXHIBIT NO. 683.30: Interrogatory No. 2.14.43.

2 MS. MARLATT: Q. All right. This is an
3 interrogatory that describes the role of the
4 environmental advisory panel. And, Ms. Howes, it's my
5 understanding that these members of such panel are from
6 outside of Ontario Hydro? That is page 66.

7 MS. HOWES: A. Thank you. Yes, they
8 are. At least nine of the members are from outside and
9 two are from inside.

10 Q. Looking at the members of the 1989,
11 1990 panel, the vice-chair is Peter Homenuk.

12 A. That is correct.

13 Q. And are you aware that he is working
14 with my clients, North Shore Tribal Council, on social
15 impact analysis of the Demand/Supply Plan for First
16 Nations?

17 A. Yes, I am.

18 Q. And I would assume that Ontario Hydro
19 appoints individuals to this advisory panel because it
20 holds their expertise in high esteem; would that be
21 correct?

22 A. Yes.

23 Q. Thank you. Do you know whether or
24 not there was or is at the present time a member of
25 First Nation on this particular committee?

1 A. On the advisory panel?

2 Q. Yes.

3 A. Not at this moment. Annually,
4 though, we review the members of the panel and try to
5 make sure we have an appropriate balance. We are in
6 the process now of reviewing that particular
7 membership.

8 Q. Is that one of the factors that you
9 are considering in the membership makeup of this
10 particular panel?

11 A. Yes, we are.

12 Q. Would it be possible for you to
13 provide with me with a list of the panel members for
14 this year?

15 A. Yes.

16 Q. Thank you.

17 THE CHAIRMAN: A number for that?

18 THE REGISTRAR: 684.25.

19 ---UNDERTAKING NO. 684.25: Ontario Hydro undertakes to
20 provide a list of the Environmental
Advisory Panel members for 1992.

21 MS. MARLATT: Thank you. The next
22 interrogatory, page 67, this is Interrogatory 11.10.45.

23 THE REGISTRAR: That is .31.

24 ---EXHIBIT NO. 683.31: Interrogatory No. 11.10.45.

25 MS. MARLATT: Q. This refers to the

1 Heritage Resources Task Group. Ms. Howes, is this
2 question still, yes, directed at you? According to Dr.
3 Tennyson it is.

4 MS. HOWES: A. This probably means it's
5 not directed to her.

6 Q. I just wanted to summarize what this
7 interrogatory stated, which is that the Heritage
8 Resources Task Group is responsible for ascertaining
9 resource inventories or classifications.

10 A. I believe that is one of their tasks.

11 Q. And do you know whether or not
12 Ontario Hydro has considered or whether or not it has
13 right now a member of the Aboriginal Vice-Presidents
14 Group on this committee, Task Group, sorry.

15 A. I don't know. Just from the
16 membership list it doesn't look as if it is a VP level
17 group, so it is unlikely that there is a VP sitting on
18 this particular panel who would be on the Aboriginal
19 Steering Committee.

20 Q. Would you know how Aboriginal
21 indigenous knowledge about where their own heritage
22 resources are located and how they should be
23 classified, how that information is dealt with by the
24 Heritage Resources Task Group?

25 A. I personally don't have any

1 information about that.

2 Q. Would you let me know whether or not
3 that task group is considering revising its
4 memberships, if it is, in terms of trying to go get
5 that type of knowledge onto the task group?

6 A. I will certainly let you know.

7 Q. Thank you.

8 THE CHAIRMAN: That should have an
9 number, too, I guess.

10 THE REGISTRAR: 684.26.

11 ---UNDERTAKING NO. 684.26: Ontario Hydro undertakes to
12 inform as to whether the Heritage
13 Resources Task Group is considering
revising its membership.

14 MS. MARLATT: Q. Would you agree with
15 me, in principle, Ms. Howes, that Aboriginal
16 communities may have an invaluable contribution to make
17 to this type of task group?

18 MS. HOWES: A. It could well.

19 Q. Thank you. Back to Dr. Tennyson.
20 Looking at page 71, Interrogatory 11.4.4.

21 THE REGISTRAR: .32.

22 ---EXHIBIT NO. 683.32: Interrogatory No. 11.4.4.

23 MS. MARLATT: Q. The second paragraph
24 states that:

25 Over the past year, Ontario Hydro has

1 taken new initiatives to develop a
2 positive relationship with Aboriginal
3 peoples in Ontario.

4 Dr. Tennyson, would you agree with me
5 that the relationship has not always been positive,
6 that this is something that Ontario Hydro is working
7 towards?

8 DR. TENNYSON: A. Yes.

9 Q. And would you agree with me that the
10 Ontario Hydro initiatives in 1990, '91, and '92, may
11 well result in a different and hopefully more positive
12 relationship with First Nations?

13 A. Definitely.

14 Q. And would you agree with me that
15 cooperative studies will likely provide useful and more
16 correct information about First Nations for planning
17 purposes?

18 A. Yes. Could I just elaborate on that?
19 I think Ms. Quinn spoke to it on Panel 6 and certainly
20 I did on Panel 7. But I think a lot of that is that as
21 we have indicated, and particularly for the
22 socioeconomic impact assessment component, the data is
23 just not available in other forms and that really in
24 terms of getting the data and getting an appropriate
25 analysis of the potential effects and understanding

1 what it all means, the community members are the
2 experts.

3 And so working together in establishing
4 these working relationships can only, I think, lead to
5 positive things for everyone concerned.

6 Q. Would you agree with me that what
7 does exist in terms of socio-economic data may be
8 viewed with distrust by First Nations if they haven't
9 been involved in producing the data?

10 A. Yes, it may. But I guess, I mean, a
11 lot of the data that has been relied upon in the past,
12 for example, has been census data. And I think that
13 First Nations themselves would agree that perhaps it is
14 not the most reliable data.

15 Q. All right. Looking at page 72 of our
16 material, this is a report entitled: An Evaluation of
17 the Ontario Hydro Approach to Consultation with Native
18 Peoples. And it was supplied to us in response to
19 Interrogatory 11.14.5. And, Dr. Tennyson, are you
20 familiar with this report?

21 A. To some extent, yes.

22 Q. All right.

23 THE CHAIRMAN: We probably should have a
24 number for that.

25 THE REGISTRAR: 11.14.5? That is .33.

1 ---EXHIBIT NO. 683.33: Interrogatory No. 11.14.5.

2 MS. MARLATT: Q. Thank you. Looking at
3 page 72-C, the third paragraph outlines the study
4 mandate which was to evaluate Ontario Hydro's program
5 of communication and consultation with Native peoples
6 and to recommend more effective approaches and specific
7 actions.

8 I should state that this report will be
9 discussed more in detail when we bring forward our own
10 information and evidence from my clients. But the
11 question I have is that this report was commissioned in
12 1989. There were several pages of suggestions as to
13 how to improve the present consultation process.

14 Do you know whether or not a follow-up
15 report to let you know where you are now in terms of
16 Ontario Hydro's relation with First Nations has been
17 considered?

18 DR. TENNYSON: A. I don't actually know.
19 As I said, I know that there are corporate initiatives
20 going on between the people in my group responsible for
21 corporate consultation and certainly the Aboriginal and
22 northern affairs branch in terms of working with First
23 Nations to establish, as I say, a corporate level
24 consultation program. So ostensibly, we are always
25 looking at where were we, where are we now. As you are

1 quite aware, I think, some of these recommendations
2 have already been implemented. In addition, our work
3 on specific projects and our consultation there and the
4 lessons we are learning and continually learning there
5 is being fed into the corporation in terms of how to
6 work together and design more effective programs.

7 Q. Dr. Tennyson, looking at the
8 conclusion section, which is at page 72-I, that is page
9 18 of the report, the last sentence in the third
10 paragraph states, similar responses have been voiced in
11 the past and were not heard. Would you agree with me,
12 Dr. Tennyson, that a report card of how Ontario Hydro
13 is doing on implementing these suggestions and on how
14 well it is implementing those suggestions might be
15 useful to First Nations to ascertain whether or not
16 their effort in working on reports like this has
17 resulted in Ontario Hydro listening.

18 A. I suspect if you wanted a report that
19 sort of stated a, whatever report, you know, it would
20 be helpful. However, I think that we are out in
21 meetings in communities all the time discussing the
22 kinds of changes and what we should be doing. So I
23 think it is fair for you to ask at any time where do
24 you stand now. I don't know that a written report
25 another subsequent study is what is required. I think

1 that in some instances we are moving so quickly and new
2 things are being identified all the time that perhaps,
3 you know, what you would want to see is the First
4 Nations themselves commenting to Hydro on how we are
5 doing. And that is certainly what we ask for all the
6 time.

7 Q. And that is my understanding that
8 that is happening.

9 A. That's right.

10 Q. And that will continue to happen at
11 this hearing.

12 A. That's correct.

13 MS. MARLATT: I do have further
14 questions, but if you would like to break now I would
15 estimate just for the other intervenors that I would be
16 probably half an hour tomorrow morning.

17 THE CHAIRMAN: That will be fine. We
18 should break now. We will break now until ten o'clock
19 tomorrow morning.

20 THE REGISTRAR: Please come to order.
21 This hearing will adjourn until ten o'clock tomorrow
22 morning.

23 ---Whereupon the hearing was adjourned at 5:02 p.m., to
24 be reconvened on Wednesday, June 10, 1992, at
25 10:00 a.m.

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